

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 656.—VOL. XVIII.

London, Saturday, March 18, 1848.

[PRICE 6d.]

Statuary of Cornwall—in the Vice-Warden's Court.

HILL & VIGERS.

IN RE POLBEROU.

OTHERWISE SAINT AGNES CONSOLIDATED MINES.

NOTICE IS HEREBY GIVEN, that the SALE of the ENGINES, MACHINERY, MATERIALS, and EFFECTS upon and belonging to the above-mentioned MINES, is POSTPONED until the month of APRIL next.

HODGE & HOCKIN,

For GRIFFIS & HILL, Solicitors, Helston.

Dated Registrar's Office, Truro, March 1, 1848.

NORTH WHEAL ROBERT MINE, near HORRABRIDGE.

—TO BE SOLD, AT AUCTION, at the MINE, by GEO. CARNE, auctioneer, on Monday, the 27th March inst., at Twelve o'clock noon (unless sold by private contract, of which notice will be given), the following MINING MATERIALS—viz.:

ONE WATER-WHEEL, 30 feet diameter, and 3 feet breast, with ladders, beams, and braces.

ONE BOB-STAND and BRASSES; one whin, pulleys, and poppet-heads; about 60 fathoms of iron-rods, 12 to 2-inch diameter.

ONE LIFT of 6-inch PUMPS, including working barrel, windtore, clock, doorpiece, &c.

ONE LIFT of 8-inch PUMPS, with working barrel, windtore, clock, doorpiece, &c.

TWO NEW 8-inch PUMPS, at Plymouth Foundry.

One balance-rod, complete, sundry pulleys and stands, one pendulum, complete, a lot of miners' tools, smit's tools, smit's bellows, vice, screw, anvil, kieve, a crane and gudgeon, with sundry lots of iron, leather, cheets, ladders, lead pipe, dressing tools, &c., count-house tables and chairs, with many other articles.

For viewing the same, apply to Capt. Heath, on the mine; and for further particulars, to John Paul, Tavistock; or the auctioneer, Plymouth.

N.B.—All persons having claims on the adventurers, are requested to send the same to the purser, John Paul, Tavistock, Devon.

March 11, 1848.

FOR SALE, BY PUBLIC AUCTION, at LEGHORN, on the 31st of March next, the QUICKSILVER MINE, situated at RIPA, near PIETRASANTA, in TUSCANY, belonging to the Società Utraristica, including the WATER RIGHT, as existing, FURNACES, MINING TOOLS, &c., as described in the *Corriere Livornese* of the 7th December last, and in the documents laying for inspection with the president of the society, Mr. C. A. Dalgas, Leghorn.—The property will be sold to the highest bidder.

A deposit of 10 per cent. to be made by the purchaser, immediately after adjudication.

The auction dues will be borne by the sellers, but the expenses of making over the property to be paid by the purchaser.—Leghorn, Feb. 25, 1848.

TO CAPITALISTS.—An opportunity, which rarely occurs, now

OFFERS for the INVESTMENT of a MODERATE SUM in a rich TIN MINE, on DARTMOOR, in the county of Devon, known by the name of EAST BIRCH TOR. Many thousand pounds' worth of tin have already been sold from this mine; the ledgers have been extended on, and tributaries are now at work. It is desirable, from the rich course of tin gone down, to sink to deeper levels; it has therefore, been determined to augment the capital, by an issue of new shares, which are now in course of appropriation.

A box of specimens has just arrived from the mine, and any party calling at the office, No. 1, Cuphall Chambers, Coothall-court, Throgmorton-street, City, can see the same, and where all partakers may also be obtained.

Application for the few remaining shares must be made on or before the 25th inst.

London, March 16, 1848.

EXTENSIVE IRON-WORKS.—FOR SALE, BY PRIVATE BARGAIN, the BLAIR IRON-WORKS, belonging to the Ayrshire Iron Company, situated in the parish of Dalry, and county of Ayr.

These works, which have been recently erected at an immense cost, consist of two blowing-engines, five blast-furnaces, workmen's houses, steam-engines for working the mines, together with stoves at the pits, furnaces, &c., all in working order, and capable of producing upwards of 35,000 tons of pig-iron per annum.

One of the blowing engines, high-pressure, estimated at 90-horse power, was erected in 1841; the other, a condensing engine, was erected in 1847, and is estimated at 90-horse power, the latter being capable of blowing five furnaces, and both fitted up in the most substantial manner, and at present in the best working condition.

The furnaces have been erected with the greatest care, and are fitted with air-heating apparatus of the most approved construction. The make of each furnace has generally averaged upwards of 150 tons of iron per week, and some of them have produced 180.

There are, besides the manager's house and store buildings, 187 workmen's houses, in a habitable state, attached to the furnaces and pits, and there are 30 partly built, which could be finished at a small additional outlay. There are also a new foundry, wright shop, fire-brick work, smithy, &c.

The MINERAL FIELDS, consist of COAL, IRONSTONE, LIMESTONE, and FIRE-CLAY, held in lease, by the company, at moderate fixed rents and Royalties, all situated within easy distances of the furnaces, and for the most part have the advantage of railway communication.

The COAL-FIELDS consist of several hundred acres, of which only a small portion has been wrought. Several pits, fitted with good engines and machinery, are sunk to the coal, and partly in operation.

The IRONSTONE consists of the well-known black-band, yielding about 3000 tons of calcined stone per acre; and it has been estimated that there are 300 acres or thereabouts which there is a large extent of clay-band ironstone, lithoite little wrought, but capable of yielding a large output. There are 15 pits, with excellent steam-engines—some of them in present operation, and others ready to resume working.

The FIRE-CLAY is abundant, of excellent quality, and cheaply produced. The Glasgow, Paisley, Kilmarnock, and Ayr Railway (extending to Carlisle), passes close to, and has connection with, the furnaces—by means of which, and other in connection with it, the produce can be conveyed to the city and port of Glasgow (22 miles off), and to the seaports on the Ayrshire coast, each within a few miles of the works.

There is a large stock of calcined ironstone, coal, and limestone on the ground, so that the works may be put into immediate operation, and, under judicious management, the manufacture of pig-iron may be carried on to the greatest advantage. The concern will be found to be well worth the attention of persons having the requisite capital, and afford an opportunity of entering into the business seldom to be met with.

MALLEABLE IRON-WORKS.—Considerable progress has been made in the erection of extensive malleable works, which, when completed, will be capable of turning out 300 tons of bar-iron weekly. The most of the necessary machinery has been prepared by the contractors; and a portion of the work could be brought into operation in a few months to produce the half of the above estimate. This work is nearly adjoining the Pig Iron-Works, and connected by railway, and will be sold either together therewith or separately.

Plans of the property and mineral workings lie for inspection at the Ayrshire Iron Co.'s office, 113, St. Vincent-street, Glasgow, where, on application to Mr. Brown, every necessary information will be afforded, and orders given for inspection of the works.

VALUABLE SEA-SALE COLLIERIES TO BE LET.—TO BE LET, and entered upon on the 1st of July next, the valuable current-working COLLIERIES of EVENWOOD and NORWOOD, in the county of Durham.

These collieries are situated upon the line of the Stockton and Darlington Railway, by which the coals are conveyed to the shipping ports of Stockton and Middlesborough, and also, by means of this, and the York and Newcastle, and Leeds and Thirsk Railways, the colliers have access to the important land-sale trade of Northallerton, Thirsk, Ripon, and the lead-mining districts, and other towns in Yorkshire, and for shipment on the Ouse; and, by means of the proposed Northern Counties Union Railway, with the important land-sale trade of the western parts of Yorkshire and Westmorland.

The royalties are very extensive. Two seams of coal are in working—one upward of 6 feet, and the other of 3 feet. The pits are at a moderate depth from the surface, and the coal is worked at an exceedingly cheap rate, and is much prized as a household coal, both for export and land-sale.

The entering tenant has the option of taking what stock he may require, at a valuation; and the amount of capital required to enter upon the collieries will be of very small amount.

For particulars apply to Thomas Wheldon, Esq., Barnard Castle; or to Nicholas Wood, Esq., Newcastle-upon-Tyne. Newcastle, March 3, 1848.

VALUABLE PUMPING AND WINDING ENGINES FOR SALE.—TO BE SOLD, BY PRIVATE CONTRACT, at WHEAL VOR MINE, in the parish of BREAGE, CORNWALL.

1 80-inch DRAUGHT ENGINE, 10-foot stroke in cylinder, and 8 feet in shaft, main beam and caps, top nozzle, spring piston and rod—all new this year; with four boilers, of 12 tons each, in excellent repair.

1 80-inch DITTO, 10 feet stroke in cylinder, 74 feet in shaft, cylinder, piston, bottom and cover, nearly new, with two boilers, of 12 tons each, and three boilers, of 10 tons each, all lately thoroughly repaired.

1 49-inch DITTO, 9 feet stroke in cylinder, and 7 feet in shaft, without boilers.

1 20-inch WINDING ENGINE, 5 feet stroke, with two boilers, of 4 and 6 tons, and vertical cage, all in complete repair—the boilers and some other parts nearly new.

1 18-inch DITTO, 4 ft. stroke, with one boiler, of 8 tons, and horizontal cage, complete.

Several TONS of straight and turned STEAM-PIPES.

12-head CAST-IRON STAMPS AXLES, with bearings, oak frame, &c., complete.

A powerful WEIGHING MACHINE, nearly new, comprising every requisite.

An immense number of PUMPS, matching-pieces and windbore, 12 to 17-inch bore, with working barrels, doorpieces, H-pieces, cases, with stuffing-boxes and glands to match, from 11 to 19 inches bore, and plunger-poles; from 12 to 19 diameter.

Pegotted rod and cap plates, 6, 7, and 8 inches wide, staples and glands, overturners, caps, saddles, troughs and guides, for balance and other bolts.

Application to be made to Capt. R. Blight, jun., on the mine.

Dated Nov. 29, 1847.

N.B.—The above are of easy transit to Hayle wharf, and from thence on ship-board, if required.

SOUTH WALES.—TO BE SOLD, in LLANDILO TALY-

BONT parish, near SWANSEA, the FREEHOLD FARMS, called PENGELLY-DDRAIN TYRBACH and BRYNLLWYD, containing 75 acres, more or less, together with the valuable VEINS OF COAL, IRONSTONE, and other MINERALS. The coal is of excellent quality for steam-packet purposes, and adjoins, and is partially intermixed with, the property now worked by the Cameros's Coalbrook Steam-Coal Company. A considerable portion of the coal under this property may be won at a very small cost.

For particulars apply to Mr. Hiram Williams, No. 61, Moorgate-street, London.

Dated Registrar's Office, Truro, March 1, 1848.

MANUFACTURING PREMISES, SOUTH WALES, on the Banks of a Tide River, about a quarter of a mile from a station on the South Wales Railway, TO BE DISPOSED OF.—The premises, which are held on lease (at a low rent), 27 years of which are unexpired, consist of a large glass-house come, with extensive buildings, two cottages, and about four acres of land; they have, for many years, been in operation as a manufactory of charcoal, sugar of lead, and naphtha; but, with slight alteration, might be adapted for other manufactures. There are two steam-engines, and other apparatus, which may be taken at a valuation.—Coal may be had delivered on the premises at less than 5s. a ton.

For further particulars apply to T. W. Lawford, jun., solicitor and land agent, Tredinnick, Llandilo, South Wales.

STEAM-ENGINES ON SALE.

NO. 1. A Second-hand double power CONDENSING MARINE ENGINE, with cast-iron framing and side beams; cylinder 31 inches diameter, 3 feet stroke; air-pump, with brass, no boiler, 47-horse power, with 7 lbs. pressure on the square inch, and very suitable for pumping and winding in a colliery, lead mine, or to drive any kind of mill-work.

2. A double power CONDENSING MARINE ENGINE, quite new, but unfinished, with cast-iron framing and side beams; cylinder 43 inches diameter, 31 feet stroke, 91-horse power, with 7 lbs. pressure on the square inch; no boiler, and suitable for the same purposes as No. 1.

3. A double power CONDENSING LAND BEAM WINDING ENGINE, cylinder 21 inches diameter, 41 feet stroke, hand gear, with button valves, parallel motion, fly-wheel, wagon-mill, with all its fittings, door, grate, dead plate, &c.; two large cast-iron bell cranks and pedestals, with strong wrought-iron connecting-rods, for pumping water from two lifts of pumps, 100 yards deep; two rope wheels, suited for flat chains, pressure to throw in and out of gear, pit-head pulleys, &c.; 23-horse power, with 7 lbs. pressure on the square inch, and suitable for the same purposes as No. 1.

4. A new direct action NON-CONDENSING ENGINE, double power, suitable for a corn-mill, or winding in a coal or lead mine, with improved screw packing for piston; ditto ditto, for nozzle valves; cylinder 15 inches diameter, 31 feet stroke, 38-horse power, with 30 lbs. pressure on the square inch, no boiler, and suitable for the same purposes as No. 1.

7. A second-hand PUMPING ENGINE, with cylinder 48 inches diameter, 7 feet stroke in the house, and the same in the pit, with air-pump condenser, hand gear, cistern, &c., pumping three lifts of pumps 100 yards, working barrels, 14 inches diameter; no boiler, 112-horse power, with 7 lbs. pressure on the square inch.

8. A new direct action NON-CONDENSING DOUBLE POWER ENGINE, 7-horse power, with a pressure of 30 lbs. on the square inch. This engine takes very little room.

One pair of MARINE BOILERS, newly repaired, suitable for a pair of 45 to 50-horse power engines.

New BOILERS, of any shape, can be made at a short notice, to suit any of the above engines.—For further information, apply to

EYTON & CO., Moyston Foundry, near Holywell, Flintshire.

STRONG MIXING PIG-IRON.—The YSTALYFERA IRON COMPANY beg to solicit ORDERS for their ANTHRACITE PIG-IRON.

This iron mixes well with Scotch pig—imparting to it strength and elasticity, and rendering it a portion of its softness and fluidity. No. 3 Pig is recommended for mixing with soft iron.—Nos. 1 and 2, for machinery castings, requiring great soundness and strength. A small period, when cast-iron is so much employed in the construction of bridges and other buildings, requiring all the strength and elasticity which the best mixture of metal will afford, it may be interesting to call attention to the characteristics of ANTHRACITE PIG-IRON.—Reported on by that great practical authority, the late DAVID MORSE, Esq., M.I.C.E. —

It greatly exceeds, in strength, in defective powers, and capacity to resist impact, any iron at this time manufactured in the United Kingdom."

"It now only remains for me to mention a property peculiar to this iron, which was noticed at the time I made the trial experiments, four years ago, but which has been more fully developed in those more recently made. This property referred to is one of great springiness, or elasticity, which considerably relaxes a tension on the bar, in defective and brittle, to resume its rectangular form. Bars that had obtained a permanent set of 10-hths, when afterwards broken, presented but a slight deviation from a right line; and in no case, did the curvature exceed one-fourth of a inch."

"It was also remarked, that most of the fractures, in breaking, presented a regularity of grain throughout, resembling the structure of unhardened steel."

Address THE YSTALYFERA IRON COMPANY, Near NEATH, SOUTH WALES.

Dated June 29, 1847.

HOT-BLAST WITHOUT COAL, LABOUR, OR REPAIRS.

DIXON AND BUDD'S PATENTS.

Apply for particulars, or to inspect the process in operation on six blast-furnaces, to

J. Palmer Budd, Esq., Ystalyfera Iron-Works, near Neath.

Dated June 22, 1847.

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY'S BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th; and from Suez on or about the 10th of every month.

For rates of passage-money, plans of the steamers, and to secure passages, apply at the company's office, 51, St. Mary Axe, London.

Tenders to be addressed to this office, giving full name and address of lender.—Parties may also communicate with Messrs. Foster and Brailsford, 68, Old Broad-street, London.

By order, D. RANKINE, Treasurer.

Caledonian Railway Office, Edinburgh, Feb. 25, 1848.

CHARING-CROSS BRIDGE COMPANY.—TENDERS FOR LOANS ON DEBENTURES.—TENDERS OF LOANS ON DEBTENURE BONDS are now RECEIVED in sum not less than £2500, for any number of years not exceeding five. Interest to be at the rate of 5 per cent. per annum, payable half-yearly, in London, Edinburgh, Glasgow, or in any county bank.

Tenders to be addressed to this office, No. 9, Villiers-street, Strand.

By order, RICHARD LAWRENCE, Secretary.

Charing-cross Bridge Office, 9, Villiers-street, Strand, March 16, 1848.

HYDRAULIC TELEGRAPH COMPANY.

SIR JAMES MURRAY'S FLUID MAGNESIA.—Prepared under the immediate care of the inventor, and established for upwards of 30 years. This elegant preparation is recommended in all cases of hiccup, indigestion, gout and gravel, as the most safe, easy, and effectual form in which magnesia may—and, indeed, the only one in which it ought—to be exhibited, possessing all the properties of the magnesia now in general use, without being liable, like it, to form dangerous concretions in the bowels; it effectively cures **NEARTICUS** without injuring the coats of the stomach, as soda, potash, and their carbonates are known to do; it prevents the food of infants turning sour; in all cases it acts as a pleasing aperient, and is peculiarly adapted to females. It has long been known that the most serious consequences have frequently resulted from the use of solid magnesia, which has been proved by Mr. Brände and many other eminent chemists, to form concretions in the bowels, endangering, and, in some instances, destroying life.—Sir HUMPHREY DAVY testified that this solution forms soluble combinations with uric acid salts—in cases of gout and gravel—thereby counteracting their injurious tendency, when other alkalies, and even magnesia itself, had failed.

From Sir PHILIP CRAMPTON, Bart., Surgeon-General to the Army in Ireland.—
DEAR SIR.—There can be no doubt that magnesia may be administered more safely in the form of a concentrated solution than in substance; for this, and many other reasons, I am of opinion that the fluid magnesia is a very valuable addition to our *Materia Medica*.—PHILIP CRAMPTON.—Sir J. Clarke, Sir A. Cooper, Dr. Bright, and Messrs. Guthrie, and Herbert Mayo, of London, strongly recommend Murray's Fluid Magnesia, as being infinitely more safe and convenient than the solid, and free from the danger attending the constant use of soda or potash.

'Letter from J. Murray, Esq., Lecturer on Chemistry, F.S.A., P.L.S.:—
DEAR SIR JAMES.—Many years have elapsed since you first showed me, in your laboratory, your super-carbonate, or soluble magnesia, and demonstrated experimentally the remarkable quantity of pure magnesia held in transparent solution. It was then new to me, and it was the chemical world, and I speak advisedly, as a practical chemist, I believe its medical value cannot be too highly estimated; and I am satisfied that the public is under an infinite debt of gratitude to you for those invaluable researches, which have been the means of its introduction. Not to mention its more obvious healing virtues, I believe it to be almost, if not altogether, a specific for lithic acid concretions, when used in the pure condensed solution invented by you.'

'Believe me to be your's, faithfully, JOHN MURRAY, F.S.A.
Portland-place, Hull, Aug. 30, 1839.'

The following testimonial of the celebrated "Dista Family," who are well known to her Majesty and the nobility of England proves the great value of Sir James Murray's fluid magnesia, and is very encouraging for delicate persons going to sea:

SIR.—Having arrived from Glasgow, per the steam-ship *Jupiter*, in this stormy season, without the slightest sea sickness, we feel bound to attribute this exemption to the most agreeable *aerogenous draughts* of your solution of magnesia and oxidated syrup, which were kindly furnished to us by that attentive officer, Capt. Ellis. Upon all former occasions we were martyrs to sea sickness, and we think it a great blessing that travellers may now enjoy such health and comfort at sea, as we derived from the use of this delightful draught.

To Sir J. Murray. Tathill's Hotel, Dawson-street, Dublin, Feb. 19, 1839.

From Dr. KENNEDY, Master of the Lying-in Hospital, Dublin.—
DEAR SIR.—I consider the fluid-magnesia to be a very valuable and convenient remedy in cases of irritation or acidity of the stomach, but more particularly during pregnancy, female complaints, infantile diseases, or sea sickness."

In addition to the above, Professor Duncan, of Edinburgh, in his extensive practice, established its efficacy for removing addictions—alleviating irritation of the stomach or urinary organs, and for dissolving little concretions and uric salts; and, consequently, as the best remedy for gravel and gout.

CAUTION.—In order to avoid the danger of concretions and sediments, which result from the use of over-saturated and unchemical compounds, made by non-medical persons, the public will please to observe, that Sir James Murray's pure fluid magnesia is prepared of that proportion of strength which is conformable to the laws of chemical equivalents, and which has been proved, in hospital and private practice, during the last 30 years, to be the best adapted for the human stomach, and the most suitable for the treatment of females and children.

Sold by the sole consignee, Mr. WILLIAM BAILEY, of North-street, Wolverhampton, and all wholesale and retail druggists and medicine agents throughout the British empire, in bottles, 1s., 2s., 6d., 3s., 6d., 1s., and 2s. each. The oxidated syrup, in bottles, 2s. each.—N.B. Be sure to ask for "Sir James Murray's Preparation," and to see that his name is stamped on each label, in green ink, as follows:—"James Murray, Physician to the Lord Lieutenant."

On the concealed cause that preys on the health and shortens the duration of human life. Illustrated with numerous coloured engravings.—Just published, in a sealed envelope.

Price 2s. 6d., or free by post, 2s. 6d.

CONTROL OF THE PASSIONS: a Popular Essay on the Duties and Obligations of the Married State—the disqualifying impediments and consequent disappointment of marital anticipations—the physiology, use, and abuse of the passions—infamous results of pre-coital exercises and excesses—the concealed cause of sexual debility, and the infirmities of the reproductive organs—with advice to those suffering from excessive indulgence in a sexual vice, or from infection; and remarks on gonorrhoea, gleet, stricture, and syphilis.—Illustrated with coloured engravings and cases. By CHARLES LUCAS & CO., Consulting Surgeons, 60, Newman-street, Oxford-street, London, Member of the London College of Medicine, &c.

CONTENTS OF THE WORK.
Chap. 1. Bodily and mental exhaustion induced byordinate indulgence of the passions, illustrated with coloured engravings.—Chap. 2. Baneful effects of a secret vice of the mind and body, evidenced in the production of consumption, epilepsy, and other constitutional diseases. Insanity, idiocy, morbid melancholy, indigestion, stricture, impotence, and sterility, with observations on the duties of married life, and on the unhappiness caused by unfruitful unions.—Chap. 3. Debility and exhaustion of the principal vital functions, the nature and treatment of impotence and sterility, and the imperfect performance of the marital act, caused by the practice of self-indulgence.—Chap. 4. Gonorrhœa, its symptoms, complications, and treatment; gleet, stricture, and disease of the prostate.—Chap. 5. Syphilis, and its attendant maladies and treatment.—Cases, and concluding observations; plates, &c.

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Persons desirous of obtaining the above work, and not wishing to apply to a bookseller for the same, may, to ensure security, have it direct from the authors, by enclosing 3s. 6d., or postage stamp to that amount.

At home from Ten till Two, and from Five till Eight. Immediate replies sent to all letters, if containing the fee of £1 for advice, &c., &c.; 60, Newman-street, Oxford-street, London.

REMOVED TO NO. 27, BEDFORD-SQUARE, LONDON.

DR. LA'MERT. ON THE SECRET INFIRMITIES OF YOUTH AND MATURITY.

With 40 coloured engravings on steel.

Just published, and may be had in French or English, in a sealed envelope, 2s. 6d.; or postage-free, from the author, for forty-two stamps.

SELF-PRESERVATION: A Medical Treatise, on the Physiology of Marriage, and on the Secret Infirmities of Youth and Maturity, usually acquired at an early period of life, which enervate the physical and mental powers, diminish and debilitate the natural feelings, and exhaust the vital energies of Manhood; with Practical Observations on the Treatment of Nervous Debility, whether arising from these causes, close study, or the influence of tropical climates; local and constitutional weakness, syphilis, stricture, and all diseases and derangements resulting from indiscretion; with 26 coloured engravings, illustrating the Anatomy, Physiology, and Diseases of the Reproductive Organs, and their various structures, uses, and functions, and the injuries that are produced in them by solitary habits, excesses, and infection.

BY SAMUEL LA'MERT, M.D., 37, BEDFORD-SQUARE, LONDON.

Doctor of Medicine, Matriculated Member of the University of Edinburgh, Licentiate of Apothecaries Hall, London, Honorary Member of the London Hospital Medical Society.

CONTENTS OF THE WORK.

The author of this singular and talented work is a legally qualified medical man, who has evidently had considerable experience in the treatment of the various disorders, arising from the follies and frailties of early indiscretion. The engravings are an invaluable addition, by demonstrating the consequences of excesses, which must act as a salutary warning to youth and maturity, and by its removal, many questions may be satisfactorily replied to, that admit of no appeal even to the most confidential friend."—Era.

"Unquestionably the most extraordinary and skilful work, and ought to be extensively circulated; for it is quite evident that there are peculiar talents required at public schools and private seminaries, which are totally unknown and concealed from the conductors of those establishments, and which cannot be too strongly reprobated and condemned. The engravings that accompany the work are clear and explanatory; and being written by a duly-qualified medical-practitioner, will, doubtless, be the means of saving many a youth, as well as those of mature age, from the various evil consequences resulting from early indiscretions."—Magaz.

Sol. by Kent and Richards, 52, Paternoster-row; Hanway, 63, Oxford-street; Starke, Tichborne-street, Haymarket; Mansell, 115, Fleet-street; Gordon, 146, Leadenhall-street, or freely for post, 4s stamp, from the author's residence, who may be consulted personally (or by letter) on these disorders daily, from 10 till 2, and from 5 till 8.

Illustrated by 26 Anatomical Coloured Engravings on Steel, On Physical Disqualifications—General Incapacity, and Impediments to Marriage. New Edition, enlarged to 106 pages.—Just published, price 3s. 6d., or by post, direct from the establishment, 3s. 6d., or postage stamp.

THE SILENT FRIEND: a medical work, on the infirmities and decay of the generative system, from excessive indigestion, infection, and the inordinate use of mercury, with remedies for marriage, and the means of obviating certain disqualifications. Illustrated by 26 colour'd engravings. By R. & L. PERRY & CO., 19, Berwick-street, Oxford-street, London. Published by the authors; sold by 31, Paternoster-row; Hanway, 63, and Sanger, 150, Oxford-street; Starke, 23, Tichborne-street, Haymarket; and Gordon, 146, Leadenhall-street.

PART THE FIRST treats of the anatomy and physiology of the reproductive organs, and is illustrated by six colour'd engravings.—PART THE SECOND treats of the diseases resulting from excessive indulgence, and their lamentable effects on the system, producing mental and bodily weakness, serious excitement, and generative incapacity; it is illustrated by three explanatory engravings.—PART THE THIRD treats of the diseases resulting from infection, either in the primary or secondary form, and contains explicit directions for their treatment. The consequences of neglect, and of the abuse, of mercury, are also clearly pointed out. This section is illustrated by 17 colour'd engravings.

PART THE FOURTH treats of Perry's Preventative Lotion, by the use of which the virus dangers of infection are obviated. Its action is simple but sure; it combines with the virus danger, and destroys its power on the system.—PART THE FIFTH is devoted to the consideration of marriage and its duties. The causes of unproductive unions are also considered, and the whole subject critically and philosophically inquired into.

THE CORDIAL BALM OF SYRIACUM is exclusively employed in treating nervous and sexual debility, impotence, &c., 1s. and 3s. per bottle.—THE CONCENTRATED DETERGENT ESSENCE, an anti-syphilitic remedy, for purifying the blood in cases of infection, secondary symptomatic eruptions, and the abuse of mercury, 1s. and 3s. per bottle.—PERRY'S PURIFYING SPECIFIC PILLS, 2s. 9d., 4s. 6d., and 4s. per box—a certain remedy in gonorrhœa, gleet, stricture, and chronic inflammation of the bladder.—PERRY'S PREVENTATIVE LOTION, an application to obviate the dangers of infection, 3s. a bottle.—Consultation fee, if by letter, £1. 15s. packets, with advice, to be had at the establishment only, by which the fee, £1, is saved.—Attendance daily at 19, Berners-street, from 12 to 2, and 5 to 8; on Sundays, from 11 to 1.

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Glossary of Mining Terms.

We have been favoured with the following addition to our Glossary by a correspondent:

SOUTH STAFFORDSHIRE.

Air-head—A channel 2 feet 3 inches by 3 feet 6 inches, driven on a level with the gate-road, and about 4 yards on one side of such gate-road.

Bildas, or Buildhouse—The men going down at 6 and working till 9, and sometimes 10 o'clock, is termed a bildas, for which the men get nothing but a drop of beer. This was originally denominated buildhouse, from the fact of the butty being able to build so many houses in the excavations thus made upon the poor men.

Bone-metres—Consisting of triangles, sprung-pole, rods, punches, shell, &c.

Breasting-tools—A small set of blasting implements.

Breasts—Are fissures, or cracks, that are found in working near old works, arising from the consolidation of such old workings.

Breasting—The horse that draws the leading skip from the loader to the wagon-hole.

Breasting—A passage same size as gate-road, but leading from the gate-road into a side of work, in which the dams are generally placed.

Bandsman—A man who loads up the coal.

Bandsman—A man who lands the skip at surface.

Boat—A piece of wrought-tree passing from one side to the other of a skip, by which it is let down into the mines.

Bathing—Lowering the gate-road, or other passage.

Benching—Holding above the measure, and then breaking up the lower part.

Brakes—A small wooden box, used for drawing clay and ironstone, and for sinking.

Brake—A gather of coals, or ironstone, by contract by the ton.

Caves—A circular piece of wood, plumed together as a foundation for the bricking of a shaft.

Chambers—Roasting iron ore.

Charter-Master—or **Butty**.

Cutting—The coal being cut perpendicularly round the pillars and ribs, in order to let the coal fall.

Coppy—A small square building of rough stones, or coals, left to support the roof during the operation of hoing.

Coppy-and-Rope—Winding apparatus, with levers and strong rope, used when repairing pumps, trees, &c.

Crossing—Clearing and making fit for traversing old gate-roads; carrying out slack from the holes; clearing the sumps at bottom of shafts, to admit of water-room &c.

Cropping-out—When the seam crops out at surface.

Dogg—An underground superintendent, employed by the butty.

Downfall—Surveying the different ramifications of the mines by means of the magnetic needle.

Dreaser—A large pick, used for preparing the large coals for loading into the skips.

Dressing—Cutting and blasting horizontally, applied to making a level, or air-way, &c.

Dig—The line of depression of a mine.

Digging—A small wagon, used in ironstone mines.

Dip—An underground superintendant, employed by the butty.

Drawing—Surveying the different ramifications of the mines by means of the magnetic needle.

Draught—A large pick, used for preparing the large coals for loading into the skips.

Draught—Cutting and blasting horizontally, applied to making a level, or air-way, &c.

Draught—Meant the quantity of coal raised in a given time.

Draught—That part of the winding machinery on which the rope or chain is coiled on.

Draught—Applies to a quantity of coal caused to drop by cutting—sometimes the thickness of 3 feet, and at others of 6 feet.

Dragoon—A square wrought-iron or wooden box, used for lowering clear water into the mine for the horses, and for conveying water into the interior of the mine, &c.

Dams—Stoppings of fine sand and brickwork, of various thicknesses, in the gate-roads, to exclude the atmospheric air from old workings, to prevent spontaneous combustion.

Door—Stoppings for air in main gate-road.

Draught—The quantity of coal raised in a given time.

Draught—Meant the platform placed over the mouth of a shaft, or winze, and to which the core (uncovered coal) is generally eight hours, not six.

Cover—Is pronounced *cower*.

Dredging-ore—Should read *dredgy ore*, or *dredy trade*—viz.: coarse poor stuff, containing little ore.

Gossen—Is generally pronounced *gozen*.

Lode Stewards—(a term omitted)—Means a *drang* (viz.: a drain, or open cutting), driven towards rising ground, on the indications of a lode in marshy ground.

Pot-ground—Read, *pit-ground*.

Quarry—Read, *quare*, or *queare*.

Sett—Signifies the boundaries and terms of the mining ground taken by the adventurers.

Sumper—Not only assist the pitman, but sink the engine-shaft also.

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY	Asiatic—14, Grafton-street.....	2 P.M.
MONDAY	Statistical—12, St. James's-square.....	8 P.M.
	British Architects—16, Grosvenor-street.....	8 P.M.
	Chemical—Society of Arts, Adelphi.....	8 P.M.
	Medical—Bolt-court, Fleet-street.....	8 P.M.
TUESDAY	Linenman—Soho-square.....	8 P.M.
	Horticultural—21, Regent-street.....	8 P.M.
	Civil Engineers—25, Great George-street.....	8 P.M.
WEDNESDAY	Geological—Somerset-house.....	8 P.M.
THURSDAY	Royal—Somerset-house.....	8 P.M.
	Antiquaries—Somerset-house.....	8 P.M.
	Royal Society of Literature—4, St. Martin's-place.....	8 P.M.
	Medico-Botanical—39, Sackville-street.....	8 P.M.
FRIDAY.....	Royal Institution—Albemarle-street.....	8 P.M.
	Philological—12, St. James's-square.....	8 P.M.
SATURDAY	Royal Botanic—Inner Circle, Regent's-park.....	3 P.M.
	Westminster Medical—17, Saville-row.....	8 P.M.

On Mining, & the Practical Applications of Geological Science.

PROFESSOR ANSTED'S LECTURES AT KING'S COLLEGE. X

LECTURES XVI. AND XVII.—MINING FOR METALS CONTINUED—THE PHENOMENA OF MINERAL VEINS—THE ASSOCIATION OF METALS—THE FILLING OF MINERAL VEINS—VARIOUS THEORIES—PROF. ANSTED'S NEW THEORY, &c.

After briefly recapitulating the chief phenomena of veins, as described in the former lectures, which consisted of their distribution, direction, magnitude, and extent, and also the materials found in veins enclosing the ores, or otherwise, Prof. ANSTED referred to the chemical condition of such minerals and ores, which were often quite different from their containing rock, or country, and had no relation to it whatever. The metals found in right running veins, in granite, granite and clay-slate together, and clay-slate in Cornwall, were, for instance, oxides of tin, sulphurates of tin, and sulphurates and oxides of copper, and they were chiefly in quartz gangues. In the cross-courses in the same district, occurred sulphurates of lead and antimony, with silver. In the limestone rocks in Durham, Derbyshire, and other counties, we had chiefly sulphurates of lead and zinc, with carbonates and fluorites of lime, and sulphurates of barytes. In the Isle of Man, sulphurates of lead with silver, in granite and gneiss, were found. In Russia, and some parts of Germany, carbonates of copper in granite rocks; and in central Germany, mercury and cinabar in porphyry.

The talented lecturer next referred to the highly important facts of observation—1. That lodes were usually affected by cross-courses, and near, or at a change of country, usually becoming richer, but sometimes depreciating considerably in value.—2. That when veins branched off they often became poor, but when several branches came together they were often rich.—3. That when two veins approached, and came in contact with each other in the deeper parts of the mine, they were generally productive of metalliferous ore at the place of meeting.—4. That many veins became poor in ore when they were suddenly and greatly increased in magnitude.—5. That there was generally a small change of temperature in and near the productive parts of mines in some districts.

Professor Ansted then went at some length into the subject of the association of metals. He mentioned gold, as usually occurring with platinum, iridium, osmium, rhodium, &c., in quartz rock, where iron pyrites was common. Gold was, in fact, universally distributed wherever iron and quartz occurred, and was always found native, or alloyed only with other metals.

Silver was found, in Transylvania, with gold; in Germany, though principally in the Black Forest, it was very abundant, in a native state, with cobalt and arsenic, in granite; elsewhere, it was almost invariably in the form of oxide and sulphuret, and usually associated with copper, and always with lead to some extent.

Copper occurred native, and with silver, in large quantities, in North America, on the shores of Lake Superior, in basaltic rocks, in the form of sulphure and oxide; with tin in Cornwall, in granite and schistose rocks, and also in Cuba and South America; in the form of carbonate in Russia (the Ural Mountains), South Australia, and Germany.

Tin was found, as oxide and sulphuret, in Cornwall, in granite and schistose rock; in Saxony, and in the Indian island of Banca, in gneiss.

Lead, as sulphuret, with much silver, in igneous rocks, in England, and various parts of the world; with sulphuret and carbonate of zinc, and little silver, in limestone rocks, in England; and also, with silver and copper, in theartz.

Mercury, native and sulphuret, in porphyry and igneous rocks.

Iron, universally as oxide, in igneous and basaltic rocks; as sparry carbonates, in limestone rocks; and as clay ironstone, in the coal measures.

Cobalt, usually with silver, antimony, and bismuth, and probably always with nickel and arsenic.

Manganese, generally in the form of an oxide, and almost as extensively diffused as iron.

Professor Ansted also alluded briefly to bismuth, nickel, chrome, tungsten, and other inferior metals and their associations, and concluded this part of the subject by some remarks upon its importance in any general theory of mineral veins.

Before proceeding to the questions naturally raised by the consideration of the modes in which mineral veins were probably filled, it would be as well to retrace what had been established with regard to their usual phenomena, for without a distinct recollection of these, it would be impossible to understand the various theories he should have to refer to. They were to recollect, then, that mineral veins were crevices which, generally speaking, though not invariably, were newer than the rocks which contained them; and that the conditions which they exhibited did not admit of the idea that they had been originally formed at the period when the rocks were deposited. The state, also, in which mineral veins were generally found indicated that they had been formed after the consolidation of the containing rocks; namely, after they had had time to become hard, and assumed their present aspect. Besides this, they were often found crossing, not only igneous and metamorphic rocks, but various mechanical deposits, proving clearly that they must be newer than the deposited rocks. It was certain, also, from the nature of their contents, that they were the result of causes different from those which produced the rocks—as, for instance, where a specimen of galena, like that upon the table, occurred in a rock, which was itself formed at the bottom of the sea by the accumulation of mere carbonate of lime, it was quite clear that the metal had been introduced by some other and subsequent action; and, in short, the idea that the beds were formed, cleft, and filled up with any material at one time, was quite beyond the possibility of the case. Again, it was obvious that metallic veins were newer than the containing rocks, because they so frequently interfered with systems of rocks necessarily of different ages, and because there occasionally occurred veins entirely filled up with mineral matter, but which had been since distributed and refilled, and crevices formed after a second disturbance, and again filled. He dwelt as repeatedly on the fact, that the crevices were newer than the rocks, because, in Cornwall, and other districts, it was the common opinion that the veins, and the rocks in which they were enclosed, were of the same date, and that it was quite impossible to make anything out respecting the value of veins, except from mere experience and practical acquaintance with their appearance. He did not wish to undervalue experience: no doubt it was a most important element in mining, and absolutely necessary for success, but it was not everything. Unless experience were founded on knowledge, it was quite as likely to mislead as to conduct the observer to correct results; and, when a miner was sent into another district, his experience, however valuable it might be in the district in which it was acquired, often did nothing but mischief, if it were not guided by judgment and knowledge. The idea that similar appearances were similarly derived from similar conditions, was not one of general application. It was not so, by any means, universally, because similar appearances did not ensure the like existence of all circumstances. It was, therefore, necessary to apply the results of scientific research to the observations of the practical miner, in order to judge correctly of those phenomena which it was clear had been the work of unequal and long periods of time, and the result, probably, of several operations.

There was another point which it was necessary to remember, before any satisfactory understanding could be arrived at, as to the nature of the various theories performed with respect to the filling-up of mineral veins, and that was the way in which the metalliferous ores occurred in the mineral veins. In some cases, mineral veins contained metals, and sometimes not; sometimes they contained earthy minerals, with metals on them and in them. The ways in which the metalliferous ores themselves were presented were very varied, and he had put on the table a considerable number of specimens to illustrate this fact. A few showed distinct crystallisation; while in others it was not perceptible. The entire absence of distinct crystalline form was very frequent; yet, if they looked carefully over each of the specimens, they would perceive in all something like crystalline structure, even when no crystals could be seen. The cleavage, for instance, was a certain evidence of a crystallisation, and was sufficient to show that a change had taken place. The prevailing minerals found were the carbonates, sulphurates, oxides, and native metals.—[The talented lecturer here described the peculiarities of each, as illustrated by the specimens upon the table.]—Amongst the metallic minerals found on the, the sulphures were the most common.

The main facts to be accounted for, were the circumstances under which the mineral veins made their appearance, and this was a question which had been the subject of much discussion. In the early days of geology, Werner formed a theory from a number of observations made in a district which was certainly well calculated to offer a fair illustration of the subject. Werner held, that every mineral substance was deposited from solution, or suspension, in water. This was his theory, and a very good theory it was, as far as regarded a great

many rocks, which were well known to be of aqueous origin. It was, however, a false theory in respect to granite, basalt, and other rocks, clearly of an igneous origin. Werner was a good observer in his way, and had a greater knowledge of facts than any other geologist of his time. In accordance with phenomena of a certain description, and in obedience to his theory, he came to the conclusion, that mineral veins were filled by aqueous deposition, the crevices being first formed by the contraction attendant upon their drying. This theory, then, involved the following principles:—First, that the rocks were originally in a state of aqueous solution; next, that in drying they contracted, and formed fissures; and, lastly, that these fissures were filled from above by materials rolled into them by water, or by the deposition of minerals, held in suspension, or solution, by water—in short, that everything had an igneous origin. Now, it must be admitted, that many mineral veins presented appearance which carried out this view; but it would not generally apply, even in ordinary cases, unless it were admitted that water could dissolve a great many minerals, which were not usually supposed to be affected by it. It was well known, that carbonate of lime was often found in a state which bespoke an aqueous origin; and the crystals of this mineral might be formed when it was passing from a state of aqueous solution by slow evaporation. There was nothing in such crystals but what might be accounted for by the action of water; and so again with a number of other substances—such as the carbonates of copper, which often exhibited a form the result of layers, being deposited concentrically on one another, which might easily happen in connection with water. So again with many of the oxides of iron, which presented appearances, which might be very reasonably referred to this origin.

This theory also involved the possibility of substances, such as quartz, being soluble in water—substances generally believed to be unchangeable by that fluid; but which there was great reason to believe were much more easily and completely acted on by it as solvent, than any one till lately had imagined. He might mention also that, very recently, a gentleman, distinguished by his researches into electrical phenomena, had asserted that he could dissolve the metals in pure water. These were facts which evidently told in favour of the Wernerian theory; and, in considering its merits, they certainly ought to be taken into account. It was possible that in this way, also, might be formed some of the sulphurates of metals—as, for instance, galena—which was found in lead mines under circumstances that proved that it had absolutely replaced original organic substances in strata. All these might be looked upon as good arguments for the aqueous theory; but admitting them all as unquestionable, this theory still only accounted for the formation of some of the many appearances presented in mineral veins. There were still a vast number of known phenomena which left it unexplained. It left, for example, those connected with *pseudo-morphism*, quite unexplained, and also some other appearances which were distinctly unexplained under this theory. It also offered no explanation of the fact, that metallic substances were often formed on a material which was afterwards entirely got rid of, passing from the inside of the metallic formation to the outside, and thus appearing again in a new form. That was a process impossible under mere aqueous action; and the Wernerian theory, therefore, left the subject of replacement quite out of the question. It also left unexplained such phenomena as that of metallic salts and pure metals being found embedded and crystallised in solid quartz and granite. In many cases, the sulphurates appeared under these conditions in rocks evidently of volcanic origin, and plainly showing that the influence of water could not possibly have had the slightest share in their formation.

There was also a number of other objections which prevented the Wernerian theory from being generally admitted. One of the most important of these was, that it left unexplained the different value of veins, as regarded the presence of the metalliferous ores, and the whole question of the direction of veins. There was no reason, if the veins were filled up by the agency of water, why open gash veins in the same district, and intersecting each other at various angles, should be filled with different materials; or why right running veins, cross-courses, and canters, should not present precisely the same conditions, or why unusual richness should accompany a change of country, or the intersection of cross-courses. The Wernerian explanation might be true, and he believed was true, in some cases; but it did not answer all the conditions of the problem, and was inapplicable as a theory, properly so called.

A directly contrary idea was started by the opponents of the Wernerian theory, which was known by the name of the Huttonian theory. This was founded upon the fact, that the appearances presented by igneous rocks, such as granitic rocks, basalt, and others, indicated that they owed their formation to the direct action of heat, which was supposed to exist at considerable depths beneath the surface. It was also surmised, that crevices were formed by the thrusting up of matter from below, and were occasionally the means of igneous matter being brought to the surface; that the filling of these crevices was a matter of igneous origin, and produced directly by injection, or by the sublimation of particles of matter on the walls of the veins. No doubt this might happen in mineral veins, as well as in *dikes* or *veins*, which were broad open fissures, filled with materials different from the rocks on either side, and in which the effects produced on those side rocks were conclusive evidence as to the nature of their origin. If, for instance, it were found that a crevice was filled with crystals, and that the surrounding rock was not crystallised; if the filling in consisted of an entirely different material, offering undoubted evidence of having regularly cooled, beginning at the exterior, and terminating in the centre; if the rocks which inclosed this matter had been melted at the point of contact, and exhibited less and less of the action of heat, until such indications died away altogether—changing limestone into marble, and hardening it in various degrees for some distance, there would be no difficulty in coming to the conclusion, that the dyke, or vein, had been filled in by injected matter, upheaved from below. But, if nothing of this kind had taken place, the filling of the vein could not be so easily accounted for. When applying this theory of injection, the process of sublimation which belonged to it, must not be omitted. Sublimation was the cooling of the particles of metal, or of the metalliferous ores thrown up into crevices too small to receive the melted rock, just in the way that vapours were collected in the neck of a retort, and crystals obtained at a convenient place near the extremity where it was kept sufficiently cool.

Taking this, then, in company with the process of injection, let them see what was accounted for, and what not. True it was, that in veins there were substances which there was no reason to suppose that water could not dissolve; but, then, there were others—as, for instance, this mass of pure copper (laying his hand upon a specimen)—which there was at present no reason to suppose water would touch, but which fire would affect: and which, by the application of heat, would be carried off in vapour, and might collect in some crevice, and reproduce the metal. Such things were possible, and this theory accounted for many appearances of that nature; but it was not true that the Huttonian, or igneous theory answered all the conditions of the problem, any more than the Wernerian, or aqueous theory. In fact, so much of the latter as was true, interfered with the universal application of the former. One great argument in favour of the igneous theory, was the way in which certain metals were found in reference to other materials. Assuming, for instance, the possibility of metallic matter being thrown up in a state of vapour, and re-forming on the walls of a vein; it might be readily imagined, that after a time, if that formation were cut across by a communication from below, another metal might be thrown up, and form upon the first; that would, doubtless, account for many appearances which were at variance with the aqueous theory of deposition. On the other hand, there were many phenomena which were at issue with the igneous theory of sublimation and injection; it would not account for the accumulation of metalliferous matter in particular parts of the vein, nor did it explain the cause of the definite direction of veins, or the actual relations of those veins which cut across others. So, also, the fact, that there was more metalliferous produce from veins which run east and west, than in those which run north and south—that a vein became richer when it crossed another—or the dissemination of native metals through the surrounding country were all left unexplained. Doubtless, the igneous theory was, in some respects, true, but it was insufficient in itself to account for many phenomena. Some geologists had thought it probable, that the igneous and the aqueous agencies had been in action together: but even this did not quite account for all the facts.

These theories had been long discussed, and others put forward, which were supported more by argument than by observation; but it was not until a recent period that any attempt was made to account for the direction of lodes, and the circumstances under which they became rich. There was nothing in the theories he had mentioned which pretended to account for facts so remarkable as the influence of particular compass bearings on the value of veins. Some years ago, however, Mr. R. W. Fox, a gentleman of great celebrity for his researches in electricity and galvanism, attempted to explain these facts; and, after many curious and valuable experiments, put forth the electrical theory. He imagined that currents of heated water were continually ascending and descending, and depositing minerals and metals in different forms and conditions, according as it was acted upon by electrical force. This was a good theory in its way, and might be regarded as the first attempt to explain the direction of veins, and others of their more remarkable phenomena. It involved such an explanation, because where the crevices ran at right angles and met, there would, of course, be greater electrical action. The result of experiments had proved that electrical action had a powerful influence in the production of crystals in a regular manner. In fact, this idea was carried out to a great extent by the conditions to be found in Cornwall; and, if it were not so applicable to other parts of the world, it certainly served to explain many important appearances. There were, however, one which it did not seem to account for—it left *pseudo-morphism* still obscure. It did not account for the presence of sulphurates, or the connection of sulphurates with each other. It left unexplained the dissemination of native metals; and it assumed in every case the presence of a quantity of soft clay, or *loess*, in cross-courses, and this, though usual in Cornwall, was by no means universal in cases where the minerals put on their most marked peculiarities. It was evident that, to be true, the theory of veins must be universal in its application. They had then proofs of aqueous deposition, and of igneous injection; and they had an electrical theory to account for many facts not explained by either of the other hypotheses; but all

these required something to connect them with each other. The theories he had described were the only ones put forward with any distinct evidence to support them; and there had been no attempt, that he was aware of, to form them into one theory, which should account for all the phenomena. He would, therefore, in conclusion, give a general idea of his own views on the subject, which were derived from a consideration of the nature of *polar forces*, and in which he endeavoured to combine the electrical theory with the others. By this means, he thought his hearers would appreciate in some measure the nature and origin of the various phenomena, in whatever part of the world they might be met with. He took, then, the imponderable agents—heat, chemical action, and electricity. Each of these was the cause of motion, but each in its own particular way. These forces were probably, in fact, only one force; and all, it must be understood, produced molecular change. Whether, therefore, these three agents were applied together, or singly, a change took place in the atomic condition of the bodies in which they acted—a molecular change, inducing a re-arrangement of the ultimate particles. In reference to this subject, there were several well-known facts, which had been made out and proved, both by the chemist and physicist—he meant those which related to the action of terrestrial magnetism.

It was known that the whole crust of the earth must be regarded as a film of matter forming the external surface of a large globe, and that there were certain powerful forces at work, which were known generally by the term electricity. What it really was they did not know; but they recognised it in its effects. It was found to have reference to poles—not the north and south poles of the earth, but two distinct sets of poles, neither of which went through the poles of the earth, nor through its centre. These poles had reference to the condition of the surface, and not to that of the whole mass of the earth. It was also now known, that this force had reference only to a moderate depth below the surface—neither above the surface, nor far below it; at least it was not probable that there was any electrical action below the external film that affected the surface itself. It was also the case that this force did not act chiefly at the surface of the earth. This subtle current, traversing the earth's crust in this manner, affected every material of which that crust was made up. If this were the case, it might be easily understood how various materials were associated in the earth's crust, as some of the oxides for instance. It was also easy to imagine, that crevices having been produced, certainly in relation to the physical structure of the earth, and having a north and south direction, should be cut across by transverse fissures. The electrical action would then tend to produce metallic ores and to arrange them in the crevices in reference to their different electrical states. Those which were in a native state would occupy one position, and the salts another; and there could be no doubt that all this again helped to carry out and explain the various phenomena in a remarkable manner. No person who has ever seen mineral veins could, for a moment, doubt that molecular change had gone on with regard to them. This molecular action produced segregation, and a consequent re-accumulation of the particles.

How this could take place in solid matter might at first seem difficult to comprehend; but to understand this, we had only to consider what it was really understood by solid matter. There was no matter so solid but it was capable of compression; and, if so, it must contain spaces, through which other matter might pass. They had examples of segregation occurring in masses and solid bodies, deposited in new places in all parts of the earth, and in all sorts of ways; for instance, masses of cretaceous matter, or chalk, were found, with a quantity of silex, disseminated in the chalk, and with them a certain quantity of iron. These substances would be deposited at the bottom of water, and the silex separated from the chalk by a process of the nature of segregation. After that the iron would separate itself, and pass through the particles of the chalk. This was a case which often presented itself in nature, and in which it was quite clear, that the iron must have been separated, in order to accumulate itself in a crystal shape at the back of the other materials. The theory of polar forces, then, must be referred to in any attempt to explain these phenomena; and he believed that it would ultimately be found to account for all the circumstances, and serve to connect the other theories, which, however, were each of them true for particular cases.

The theory, then, which he thought might be safely proposed with regard to the filling of mineral veins would stand as follows:—Firstly, that the veins themselves are simply mechanical results, either of subterranean disturbance, opening into great depths below the surface, or of contraction, sometimes proceeding to great depths, but generally terminated below. Secondly, that mechanical, and other fissures, have reference to the main lines of dislocation, observable in the direction of mountain chains, and other great world phenomena. Thirdly, that the fissures thus formed have been like the rest of the earth's surface, subject to the action of magnetic currents, and that they have become receptacles in which re-arrangement might conveniently act, and particles assume a crystalline form in their natural order. Fourthly, that the materials abundantly present in the earth's crust, or elaborated, according to the action of chemical laws, have thus arranged themselves in those forms which circumstances have demanded. Fifthly, that, in many cases, this has gone on during long periods, involving change; and that thus the phenomena of *pseudomorphism*, and the association of metals, have taken place. And, lastly, that we must look to electro-chemistry, studied with reference to rock masses and complicated metallic results, for the means of advancing these investigations; and that distinct observations in mines must be recorded, in addition to experiments in the laboratory.

These were the general views, which, in the present state of things, he held with regard to the filling of mineral veins; and he put them forward, not as entirely sufficient, or satisfactory, but because it was advantageous to have a theory of some kind, and this he thought was as near the truth as the present amount of investigation would take them. It was, however, an advantage to have a theory, as it served to collect and hang facts upon, and also to suggest new methods with regard to the discovery and working of mineral veins, besides raising discussion, and suggesting ideas; and although the theory might not be so nearly perfect as could be wished, it might still form a foundation upon which a more elaborate

THE MINING JOURNAL.

Mining Correspondence.

ENGLISH MINES.

ANTIMONY AND SILVER-LEAD MINES.—Capt. Edward Richards, in his report, states—"I went to Tregear Antimony Mine yesterday, and found the men were sinking a shaft 8 or 9 ft. south of the pit in which the antimony was in sight. They had just cut the lode in the shaft. Coarse rocks of spar are always found with antimony lodes; and so it is at Tregear. There is a great deal of corroded, or rotten antimony, which is always the case, until the lode gets down in the solid ground, that is to be seen in the parts which are open; and so it is in the west end of the shaft now sinking. There are very good stones of antimony, covered with corrode, now to be seen; the ground is very good about the lode, from the appearances of a much coarse spar, quantity of corrode, or decayed antimony—good kindly ground, and fine stones of antimony ore. The mine is well worthy of a trial, and, in my opinion, will turn out a profitable investment. There have been several tons of ore sent to London. The shaft they are now sinking was 15 ft. to-day. From the prospects at present, the mine ought to be prosecuted with vigour; the lode in sight is 4 ft. wide, of solid antimony." The following is the assay of some of the antimony ore sent from the above mines to John Ryan, Esq., M.D., dated, Royal Polytechnic Institution, Feb. 12, 1848:—"I hereby certify, that I have examined the specimen of antimony ore sent to me for analysis; the ore is very valuable, and will yield upwards of 70 per cent. of pure antimony."

BARRISTOWN.—There is no change in the old mine, except a slight improvement in a tribute pitch, in the back of the 18 fm. level. In the adit east the lode is producing about 4 ton per fm.; we are also working two pitches in the back of the adit level, behind the end, which are producing about the same quantity per fm. The water is drained in the eastern flat-rod shaft, and men are now sinking it at 5 ft. per fm.; the additional rods do not effect the engine in working the crusher.—March 11.

BEDFORD UNITED.—At Wheal Marquis, the lode in the 90 fm. level, east of the sump winze, is 3 ft. wide, and worth 40/- per fm.; in this level west there has been no lode taken down; the lode in the rise, in the back of the 90 fm. level east, is 3 ft. wide, and worth 12/- per fm.; and in the stopes, in the back of this level west, the lode is still worth 18/- per fm. The lode in the 80 fathom level east is 2 ft. wide, producing some saving work. In the 70 fm. level east there has been no lode taken down; in this level west, on the south lode, we have cut through the cross-course, but the lode has not yet been seen. The lode in the winze in the 47 fm. level west, on the south lode, remains without alteration. In the 25 fm. level, east of the south engine-shaft, the lode is 2 ft. wide, producing good stones of ore; and in the adit level east, on this lode, the lode is without important alteration.—March 15.

CARADON WHEAL HOOPER.—The engine-shaft, is sunk 5 fm. 6 in. below the 50, and is now altogether in a compact bed of granite, which is strongly mineralised; several branches are crossing it, composed of mundie, spar, and peach, with much prian, can, and copper; all of them are kindly branches; no practical miner can doubt of a paying level to the 60, and of the shareholders being remunerated for their spirited outlay; of which, I must say, they are well deserving, as no mine in this neighbourhood has been more legitimately worked. I am of opinion, that we shall yet have copper to the 50 that will pay us for sinking the shaft to that level, and all our drivings, &c. We have a good ore lode gone down in the bottom of the 50, which was quite unexpected. We have not as yet cut the large lode south, but I hope we shall see it soon, with a good course of ore in it. We have met with several small branches in the cross-cut, all of which contain copper; therefore, we may reasonably expect something like a paying lode in this, especially as we had a quantity of copper in the lode we cut quite opposite, for 6 ft. on the course of the lode. Before we cut the slide, where we shall cut this large lode, we should be driving on the course of the lode, had we sufficient air. We have, it is expected, about 5 fm. more to drive to cut the Sawpit lode; this will be completed in about seven weeks, when I fully expect to see a good lode; in this cross-cut we have also met with branches containing copper, can, &c. Under our present circumstances, this mine never had a better aspect than at present; therefore, I say to one and all of the shareholders—hold on your shares, or you will regret parting with them. The south part of South Caradon is looking well. Some of the same lodes are passing through Wheal Hooper. Clymo's is a parallel lode with Hooper's lode. All the ore in this district has a southerly dip. Judging from analogy, Wheal Hooper is the identical spot to meet with copper. I hope the present holders will hold on, and see the result of the two lodes we are now shortly expecting to cut, and I have no doubt but that they will have to thank me for this counsel.—March 11.

COATLITHE HILLS.—During this week, the men have been employed in sinking a winze on Coatliche Hill vein from the bottom of the level, north of the horse level, and have sunk about 4 ft. I expect to get to the bottom of the plate stratum by the end of next week.—March 11.

DEAN PRIOR AND BUCKFASTLEIGH.—The sumpmen have completed the dividing and casing down the engine-shaft to the 30 fm. level; having commenced drawing with the machine-whim in that level, will enable us to make a greater progress in cross-cutting towards the lode. In the 20 end west we are still driving on the south part of the lode; there is every appearance of the lode changing for the better, being a strong champion lode; in the pitch, in the back of the level, the lode is still looking well, and producing good saving work. I have also to inform you, that we have put the crusher to work; and, although some of the work is of a very hard nature—that is, intermixed with capel—it yet gives me great satisfaction to be enabled to state, that the crusher works extremely well—therefore, we shall get on with the dressing with all possible speed.—March 15.

EAST CROWNDALE.—The ground in our engine-shaft continues favourable for sinking; it is in a clear killas, and is much better ground than we had for great number of fathoms; we have sunk the past week 5 ft. The end driving in the 47 fm. level west, on the north lode, is very much improved in appearance the last few days; the lode is about 1 ft. wide, composed of spar, prian, and ore, and very likely to increase in size and quality; the stopes in the back of this level look well—large ore lode, upwards of 2 feet wide. I shall be able to say more about this place in my next, as there will be more lodes taken down.—March 11.

GALLOWAY.—We have been coasteing south on the north and south lode, leading from the old workings near the river, which communicate with the north lode connected with the silver. Such persons may rest assured that there is no foundation for their fears; as if they travel inland, westward and southward from Chocolate River, they will find a country embracing about 2000 square miles, very similar to Cornwall, bounded on the north by the Harris granite mountains, and frequently interrupted by similar ridges, while the valleys are filled up with hills, or taloses and clay-slates, capes, and elevans, accompanied with quartz veins, laced with mundie, rich gossans, and not unfrequently with yellow copper and carious of iron. In other places, in the same region, may be seen large courses of specular and hydrous oxides of iron, similar to that of Padstow and Lostwithiel, in Cornwall. So close is the resemblance of the rocks in this region to those of Cornwall, that were it not for the heavy growth of timber, one might easily imagine himself located either at Carkstock and Kit-Hill, on Dolcoath and Carn Brea. Both the yellow and the horse-flesh copper have been found in this region, and also lead in cross-courses. Here there is a second Cornwall, with 120 miles of lake coast, abounding with good soil, good lumber, good fisheries, and large flowing rivers, supplying numerous water powers, in addition to its rich mineral resources. Time would fail to mention the numerous discoveries of grey copper out of the region last described; such as Lake La-Boile, Montpelier Mine, and others. The black oxide, the red oxide, the blue and green carbonates, the rich grey sulphurite, as well as the yellow bisulphite of copper, have all been found on the American shore of the Lake, near the native copper, and will all be found more abundantly by further excavations. No fears, therefore, need be entertained on account of a deficiency of copper ore.

The most important question, however, is—Can these mines be worked to a profit? We answer—No. With the exception of a few localities, this mineral wealth might as well be in the moon, or the planet Jupiter, as far as profit is concerned, as on the shores of Lake Superior. First, there is no agriculture, and provisions are double the price they would be, if the miner could have his patch of land as in Cornwall; but the Congress have done all they can to prevent the advance of agriculture, by charging from \$24 to \$5 per acre for this land, because mineral, while, in richer rural districts, it can be had for \$14. Again, the delays and difficulties of transhipment at Sault St. Marie are sufficient of themselves to exhaust all the profits of mining. These obstacles have driven capital to the Canadian side of the Lake, where mining is rapidly progressing. It is, however, expected that, to remedy the latter evil, a ship canal will be constructed around the falls of St. Marie, and build light-houses along the shore, which is half the American Atlantic coast; and its fisheries are hardly less important than those of Newfoundland. A great increase of population, of towns springing up, where provisions can be had plentiful and cheap, the working miner must be assisted with his "bit garden," to supply himself with vegetables, a quicker and better mode of conveyance established in this far distant region, and, in fact, a new order of things take place, before this highly mineral district can be even partially developed. A new state is about springing into existence, called Minnesota, whose port of entry will commence the western extremity of Lake Superior. Excellent coal beds exist between that harbour and Red River settlement—a circumstance in itself of the utmost importance, and one which should induce Congress to take a more liberal view of things, particularly in the sale of unclaimed lands.

ALLIANCE AND DUBLIN CONSUMERS' GAS-LIGHT COMPANY.—We have just seen the profit and loss account of this company for the half-year ending 31st December. The profit, after providing for every contingency, will pay a dividend of about 2s. 6d. per share for the half-year, and thus virtually on 3d. paid up per share, as the call of 12 was not payable till October, and not much of it paid until November, and none of the income for the extensions had become available in December. This statement will, we have no doubt, be highly satisfactory to the numerous shareholders in Edinburgh.—*Scottish Railway Gazette*.

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It is generally believed that the waves; and it was agreed, that in this, as in all other cases of engineering, no empirical rules should be laid down, but that the skill of the engineer should be exercised to adopt such forms of construction as were best adapted to the locality and the circumstances.

The following papers were announced to be read at the meeting of Tuesday, March 21:—No. 724. "Description of the Wood Bridge across the River Tees, at Stockton," by H. T. Wright.—No. 720. "Description of Brighton's Safety Railway Chairs" by E. Higham, Assoc. Inst. C.E.—No. 726. "On Railway Junctions," by A. Beanlands.

GEOLOGICAL SOCIETY.

MARCH 8.—Sir H. T. De la Beche (President) in the chair.

A paper "On the Position in the Cretaceous Series of Beds containing Phosphate of Lime" by R. A. C. Ansten, Esq., was read. In a letter in the *Gardener's Chronicle* of the 10th of Feb. last, Mr. Paine, of Farnham, gives an account of some strata in which phosphate of lime occurs in sufficient abundance to render it of importance to agriculture, and the editor expresses a hope, that the notice may lead to the successful search for underground wealth in other parts of the country. The present paper is written in part fulfilment of that hope. Many observers, as M. Brongniart, Dr. Buckland, Sir H. De la Beche, and Dr. Flitten, have noticed the occurrence of phosphates of lime in the gault. The author had also noticed them in his account of the vicinity of Guildford. The important part of the renewed discovery is, therefore, only that this substance is so abundant as to have great economic value. Near Guildford, phosphate nodules are abundant in the upper greensand. In the gault below, concretions of phosphate of lime are not uniformly diffused, but occur in two series—one in the argillaceous portion of the bed, the other very low in the mass. Both beds are very persistent; but, in consequence of the undulations of the strata, along the base of the escarpment of the North Downs, it is only a few places that will repay those who may look for this mineral substance, the beds of gault and greensand being often far below the surface. The phosphates have been found beneath Newland's Corner, near Guildford, at Puttenham, and other places. The greensand and gault at Farnham, also, contain beds productive of phosphates of lime. The nodules have the form of coprolites, but differ from these bodies in internal structure.

A paper "On the Presence of Phosphoric Acid in the Subordinate Members of the Chalk Formation," by J. C. Nesbit, Esq., was next read.—From the marl near Farham, there was obtained, by washing, a substance evidently coprolitic, containing 25 per cent. of phosphoric acid, while the general mass contains as much as 2 to 3 per cent. In some nodules, from the gault near Maidstone, so much as 23 per cent. was also obtained, and some nodular masses of shells from the Shunklin sands showed 15 per cent. of this important substance.

An "Outline of the Principal Geological Features of the Salt Field of Cheshire and the adjoining districts," by G. W. Ormerod, Esq., was next read. The salt measures are exhibited in the best manner in a line from Mow to Middlewich and Northwich, and along the lower valley of the Weaver. Near Congleton and Church Lawton, the saliferous and gypsum beds have a thickness of about 600 feet. At Northwich, the beds have been sunk into 500 feet; and at Middlewich, where they underlie the former 300 feet, or above 600 feet in all. The salt water—in some places occurs on the surface naturally; at other places, is found by boring often below the level of the sea. At Middlewich, the water contains about 1/2 lbs. of salt in a gallon. Where the salt has continued to be washed out from the interior of the earth for a long period in this manner, the ground above often sinks, and considerable changes of level take place, interfering with the drainage, and occasionally submerging large tracts of ground, so as to form lakes.

COPPER MINES OF LAKE SUPERIOR.

The produce of some of the mines of the Lake Superior district is truly astonishing, and it would seem there is yet much to learn as to the extent of the richness of this district. The Boston and Pittsburgh Company shipped during the past season—

Per schooner <i>Jena</i> , in the spring	Tons 44
Per propeller <i>G. Hart</i>	180
Per ditto <i>Chicago</i>	120
Per S. B. Sam. Ward	52
Per schooner <i>Jena</i>	44
And the Champion will bring	56 more

Making all the amount

Tons 490

This is native copper,* and averages over 80 per cent., and is sold in Boston at 16s cents. per lb., of copper; the purchaser smelting it at his own expense. The net proceeds of this ore will amount to about \$115,000, and the expense of working the mine for a year is just about \$50,000, leaving for dividend this year \$60,000. From all that we can learn, although the idea "that the whole country is filled with copper, and that you cannot go through the woods without stumbling over it" is most absurd; still also is it perfectly true, that immense masses of native copper* have been found, and that more are daily being developed, in veins running for miles throughout the country. Equally foolish is the idea that, where pure native copper is discovered, there is no good reason to expect important deposits of copper ore. This latter idea is often advanced by persons who affect to be learned in the business of mining and the doctrines of geology; but when closely questioned, their experience is found to vanish into the opinions of others, or narrow down to the working of one or two mines of yellow copper in clay-slate or killas; whereas, had they ever visited the mines of Cuba, or even seen Carn Brea or Fowey Consols in Cornwall, they would have come to a different conclusion.

In the second place, although copper is not to be found everywhere on Lake Superior, its existence in vast quantities, enclosed in strong, well-defined metallic veins, cutting through the whole substance of the rocky strata for miles and miles inland, is no longer a problem. The discovery of some 20 or 30 boulders of native copper* lie upon the surface, the larger of which varied in weight from 1000 to 4000 lbs., has led to the discovery of masses of copper ore in the above-mentioned veins, varying in weight from 2000 to 80,000 lbs. Numerous veins yielding copper of this description have been explored, both in length and depth, to such an extent, as to leave no doubt of the existence of immense similar deposits. Many consider those deposits of native copper very extraordinary, and so they are; but they are not altogether unparalleled. At the Copper Mine River, in the far north-west, copper boulders are far more numerous than on Lake Superior. Similar deposits of native copper have been found in abundance on the Molok Islands; also in Iceland, Russia, Cuba, South America, and Japan. The mines of Suruga, Kyno, Kuni, and Atsinga, have yielded amazing quantities of native copper. Cargoes and cargoes have been shipped from thence by the Dutch and Portuguese. And not only cargoes and cargoes of copper, but (if we may credit history) whole ship-loads of gold and silver, derived from the same source, and found in connection with the copper. This extraordinary product formerly constituted the wealth of many whole provinces, and is at present by no means exhausted. Here then we have, as it were, a "fairy tale" of Lake Superior, except that the copper of Suruga contains a larger per centage of gold. Other things being in harmony, should we not reasonably expect to find gold with copper on Lake Superior? We answer, yes; and can add, on the authority of our respected informant, that it is thus found. On making a cross-cut, on Prince's vein, on the main land, and north shore of the lake, native copper was detected, which, however, soon gave way to viviros or grey sulphurite of copper, and that in turn to metallic silver, with which is found a portion of gold. Instead of this being something extraordinary, it is just what ought to be expected, in order to make our the harmony of nature, whose laws are uniform and constant. The occurrence of silver on Lake Superior, is nearly as frequent as that of copper, although not in such large quantities.

Not a few, and especially Cornish miners, have expressed great fears that there would not be found a supply of the ordinary yellow copper ore on Lake Superior, in addition to the native copper* connected with the silver. Such persons may rest assured that there is no foundation for their fears; as if they travel inland, westward and southward from Chocolate River, they will find a country embracing about 2000 square miles, very similar to Cornwall, bounded on the north by the Harris granite mountains, and frequently interrupted by similar ridges, while the valleys are filled up with hills, or taloses and clay-slates, capes, and elevans, accompanied with quartz veins, laced with mundie, rich gossans, and not unfrequently with yellow copper and carious of iron. In other places, in the same region, may be seen large courses of specular and hydrous oxides of iron, similar to that of Padstow and Lostwithiel, in Cornwall. So close is the resemblance of the rocks in this region to those of Cornwall, that were it not for the heavy growth of timber, one might easily imagine himself located either at Carkstock and Kit-Hill, on Dolcoath and Carn Brea. Both the yellow and the horse-flesh copper have been found in this region, and also lead in cross-courses. Here there is a second Cornwall, with 120 miles of lake coast, abounding with good soil, good lumber, good fisheries, and large flowing rivers, supplying numerous water powers, in addition to its rich mineral resources. Time would fail to mention the numerous discoveries of grey copper out of the region last described; such as Lake La-Boile, Montpelier Mine, and others. The black oxide, the red oxide, the blue and green carbonates, the rich grey sulphurite, as well as the yellow bisulphite of copper, have all been found on the American shore of the Lake, near the native copper, and will all be found more abundantly by further excavations. No fears, therefore, need be entertained on account of a deficiency of copper ore.

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* So termed by the Americans; it is, however, a red oxide, yielding from 70 to 90 per cent. of pure copper.

large, composed of quartz, and stones of lead; the pitch, in the back of this level (north of the stopes), is producing some very good lead. The lode in the 100 fm. level south is 2 ft. wide, composed of spar and lead, worth 5/- per fm.; the lode in the winze, sinking below this level, has not been taken down since we commenced sinking. The flap-jack lode, in the 100 fm. level east, is still divided in two branches, making two regular walls, 3 ft. apart; one of the tributary pitches, in the back of this level is improved, the other pitch is much the same as it has been for some time past. The lode in the 90 fm. level south is 2 ft. wide, composed of spar and stones of lead.—March 14.

KIRKCUDBRIGHTSHIRE.—The lode in the 50 fm. end, driving west, is 4 ft. wide, producing 12 cwt. of lead per fm. The lode in the 40 fm. end west is 8 ft. wide, producing ½ a ton of lead per fm.; the lode in the end east, on the

In the stopes, in the back of this level, are producing a moderate quantity of ore. The lode in the 22-ft. wide, and worth 7d. per finn.; the stopes, in the back of this level, are a little improved. We are getting on very well in sinking Trelawney's shaft under the 42-ft. level. The cross-cut, east from Trelawney's 22-ft. level, is progressing much as usual. At Vivian's 40-ft. level the lode is 8 ft. wide, and producing gossan, can, and good stones of lead, worth 6d. per finn.—March 14.

FOREIGN MINES.

ST. JOHN DEL REY MINES. — Morro Velho, Dec. 23.—Gold extracted to date—10,624 oitavas, from 481 46/100th cubic feet of sand—22 65/100ths oitavas per cubic foot. Stamps working during 28 days, 68 53/100ths. The supply of stone has been tolerably good; but a great number of boxes, as likewise of spallers, being now either in hospital or on the convalescent list, the supply of stone to the stamps must be expected to fall off, as a matter of course.

IMPERIAL BRAZILIAN MINES. — Gongo Soco, Jan. 3.—From your hopes of our being able to open a communication between Walker's and Thomas' shafts, and to get the new wheel ready so early as September, dear my intervening letters, assuring a fair later period for the accomplishment of both these objects, will have occasioned deep disappointment. We were compelled to discontinue the level between the two shafts by the increase of water in the mine, but it is now again in course of extension; whilst, if Walker's new wheel had been in working order, it would have been of no use to us, for want of the new pumps. I have repeatedly urged the founder on the subject of the gudgeons for the wheel, for which we are now waiting, and he now promises them during the present week; he will, however, (in spite of all I can say), take his own time, as he well knows there is not another person in the province who can make such heavy pieces as these. I regret to say, that Gongo presents no alteration, but that of increased poverty in our western ground. At Bananal, being unable to sink Thomas' shaft, for want of more water-power and larger pumps, we are driving thence towards Walker's shaft on the one hand, and on the vein under the large pump on the other. The vein shows traces of gold, and has a very promising appearance, but has hitherto given nothing for the washing-houses. All our works in the adit have, just at the same time, fallen in hard ground; we are, therefore, bringing the various roads on opposite sides, exactly opposed to each other, so as to drive across the rock at right angles. In order to have the shortest distance through it, and thus save lime and money. We wait only on the fumader for his iron work, to commence putting Walker's wheel (long since in an advanced state of preparation) into its place. The captain's room is in use; the washing-houses will be in readiness during the present week; the stores and offices are walled and roofed, and need only floors, doors, and windows, and the wood-work for the sawmill roof is in a forward state. A few dry days, after 28 days of rain in December, now allow us to work out the places for other buildings, which will be commenced as soon as our Brazilian workmen return from the Christmas holidays.

SOUTH WHEAL TRELAWEY MINING COMPANY.

At a meeting of shareholders held at the offices, Bircham-lane, on Friday 10th inst., the minutes of the previous meeting were read and approved; the statement of accounts was examined and passed, showing Dec. and Jan. cost, 2807. 6s. 4d.—Balance in favour of the mine 10th January last, 1697. 8s.—leaving balance against the mine, 1187. 18s. 4d. It was resolved, that the purser do by himself, or through the merchants to whom the mine is indebted, take legal steps against such shareholders, who shall not, within two weeks of the present time, pay up the arrears of the call made on 2d Nov. last. A call of 50s. per share was made, payable immediately. The following report was read:

South Wheal Trelewney Mine, March 8.—I beg to inform you, the engine-shaft is sunk 56 fms. below the adit level, the ground in which is still as favourable as we could wish to find it, and stands without being timbered; it is a dark blue-black slate strata, in which are often seen spots of lead, mica, and crystals of copper ore, very congenial for lead, we believe, if we are allowed to found our opinion on the strata in connection with such a ledge as we have driven through in the adit level (particulars of which have been given you in former reports), also bearing in mind how very favourable this ledge is, and still is in the adjoining mine—viz., Wheal Mary Ann, Wheal Trelewney, and Wheal Trelewney. In each of these mines, the strata is in every respect to that in South Wheal Trelewney Mine; we intend to continue driving the shaft to 30 fms. below the adit level, and whilst the shafts are being engaged cutting ground for sixteen beams, &c., and fixing plunger-lift, to have six men employed, at one time, and at the same time, extending a cross-cut west from the shaft to intersect the ledge, which will be about 12 fms. agreeable to the underlay, as seen in the adit level, and at a depth of 42 fms. from the surface. Should the ground become favourable, we have every reason to believe the ledge will be intersected at Midsummer next, and if it be possible, we will accomplish it before that time. We have ploughed enough on the mine, without accident, to put us to the 30-ft. level, also far enough to divide and case down the shaft to that depth. Our engine works remarkably steady, and the water at present is rather short of two strokes per minute. As the time is not far distant when the ledge will be intersected 42 fms. below the surface (a very interesting point certainly to the shareholders), we hope our expectations will be fully realised in every respect, and their reward be, for their perseverance and outlay, a profitable and lasting mine.

SOUTHERN AND WESTERN MINING COMPANY OF IRELAND.

The first ordinary annual general meeting of shareholders was held in the Committee of Merchants' Room, Commercial-buildings, Dublin, on Monday, the 6th inst.

Major Bramah, in the chair.

On commencing business, the Chairman said, "I have never assumed the chair at any meeting, either of a public or a private character, with more sincere satisfaction than at this, the first meeting of the shareholders of the Southern and Western Mining Company of Ireland. Embarked in company with yourselves in an undertaking which I have witnessed with the deepest anxiety from its commencement. It is however but most satisfactory to me, to find that the directors are able to submit to the shareholders the highly favourable report which will be read to you by our Secretary. Gentlemen, this company was formed under circumstances the most unfavourable that can be imagined. Sixteen millions of capital became lost to Ireland, through the failure of the point-to-point post-chaise, and famine beset the land—wild speculations and commercial embankment made bankrupt many of the oldest and most respectable houses of the sister kingdom, and credit had been shaken to its base. The formation of this company involved the purchase of the Gurtavally Mine, at a cost of 20,000*l.*, and the obtaining of a Charter of Incorporation, the expense of which far exceeded the expectations of the shareholders. Yet, under all these circumstances and difficulties, the directors worked on, and now stand before you on the present occasion with scarcely a single debt or liability, beyond the ordinary current expenditure—all the heavy preliminary mining operations being successfully concluded, and a cargo of ready for shipment. Gentlemen, I believe there is no instance on record in the mining world, of so much having been done in so short a time, with so little capital. (Hear, hear.) It would require that 10,000*l.* should be sunk in Cornwall, before arriving at such a position; and yet here, with so small an expenditure, the actual mining expenditure not much exceeding 200*l.*, we have placed the mine in a condition to yield successive cargoes of most valuable ore. The Charter of Incorporation may at first sight appear a costly purchase, about 220*l.*; but it is to be recollect that it is the great security for the shareholders, as without its protection you would be exposed to all the undefined liabilities attaching to trading companies under the Joint-Stock Company's Act, by which the property of any individual shareholder is made responsible for the debts of the company; but under our charter, however, your liabilities are defined, and cannot exceed the amount of your subscription. The possession of this charter is also a peculiar privilege to our company. There is no mining company in Ireland, no trading company of any kind, which has been fortified with such a grant; and I will take this opportunity of expressing, in the name of the directors, our sincere acknowledgments to the Members of the House of Lords and Commons, who have so considerately aided the prayer of our memorial to her Majesty. (Hear, hear.) Where so many have been offended, it may appear invidious to particularise; yet I cannot forbear to mention the name of the Earl of Lincoln, who, in retiring from his office of Chief Secretary for Ireland, left behind him a strong recommendation to his successor in favour of our memorial; neither should I forget to mention the name of the Right Hon. David E. Pigot, who gave us his gratuitous service; nor that of the Earl of Clarendon, our present excellent Vicaroy, who put forward our memorial so kindly. (Hear, hear.) Gentlemen, I could dwell on the advantages which you have conferred, and are capable of yet conferring, on one of the poorest, wildest, and most uncultivated districts in the south of Ireland, but I am aware that that is not a point to bring before a body of gentlemen associated for their own private advantage; at the same time, I should be sorry to think that any one of us would shut out from his mind the pleasing reflection which must suggest itself to any philanthropic man, that in benefiting ourselves, we are benefiting others; and that in proportion as our expectations are realised, and our operations extended, in the same proportion those who are dependent on us will be served, and their social condition advanced. (Hear, hear.) Gentlemen, I consider myself fortunate in being able to corroborate much of the details which will be communicated to you by our excellent superintendent, having visited the mine in August last, and personally inspected the works; and, although I have no pretensions to any knowledge of practical mining, still I can sufficient to satisfy me, that a most valuable mine had been laid open, and that the most formidable difficulties had been overcome; that a cliff, nearly 300 ft. above the level of the sea, had been pierced, and levels carried it to a considerable extent; that a firm and commodious dressing-floor had been wrested from the Atlantic, and a reservoir constructed, and a deep adit, by which the mine is drained, and a ready conveyance afforded for the ore, avoiding the heavy cost of steam machinery, from which, in all probability, the company will be saved during the life-time of the present generation. In addition to this, much of the ore itself comes out in so pure a state as to require very little preparation for market; and, in short, it requires but a little steady perseverance, and a small amount of capital, to render the Gurtavally Mine a most profitable concern. Gentlemen, I think it right to state these facts, in corroboration of the mere minute details which will be laid before you; and I shall now only add my congratulations on the condition and prospects of the company, and our singular good fortune in having secured the services of the able, upright, energetic, and indefatigable officers who have been entrusted with the executive department of the company." (Hear, hear.)

The Secretary then read the report of the directors, which we published in the *Mining Journal* of the 4th inst.

The report of the superintendent, Capt. Thomas, was also read, which entered into the details of the workings, and was highly encouraging—ledges were being cut, averaging from 4 to 24 ft., containing rich oxides and carbonates of copper. There had been explored since opening the mine 475 fms. 0 ft. 6 in. in shafts, levels, and winzes; and it is stated that the company had a mine which might be worked for 100 years to come, at 70 fms. deep, without incurring one farthing expense for water-charge, being all drained by the deep adit to that depth. Nothing has been drawn to surface, as all the ore is brought by railroad laid down in the adit; and dressing-floors, smiths' and carpenters' shops, and every thing necessary, had now been provided, and all with an outlay of less than 300*l.* Capt. Thomas said, he hoped to be able to ship a cargo of copper ore, of 50 tons, by the end of the week, value 600*l.*, free of all expenses. In all his experience, he never saw a mine which presented such favourable prospects as their mine did.

The following directors, retiring in rotation, were then appointed—Major Bramah, T. S. Reeves, H. Townsend, and R. Briscoe, Esqrs.; and as auditors—A. S. Carr and W. C. Logan, Esqrs.

A lengthened discussion then took place on the propriety of obtaining the opinion of some eminent mining agent, as to the condition and prospects of the Gurtavally Mine.

Mr. Gorringe moved, that the opinion of the directors be cast to the expediency of obtaining the opinion of some eminent mining agent on the Gurtavally Mine; and that Messrs. Guy, Hill, and Goulding, on the part of the company, be requested to accompany the agent to inspect the mine.—Mr. W. K. Rogers voted in the motion, which was carried.

Mr. Townsend was then moved to the chair, and the thanks of the meeting having been passed to the former chairman, Major Bramah, the meeting adjourned.

NORTH ROSKEAR. — The statement of accounts to March 18th, shows—Byers sold, 4000*l.* 10s. 5d.—Cost for December and January, 2999*l.* 17s. 1d.: less profit, 102*l.* 2s. 4d.; add, in purser's hand, end November, 250*l.* 18s. 7d. 261*l.* 0s. 1d.—By dividend, 350*l.*: leaves balance in hand, 210*l.* 0s. 1d.

WHEAL VENLAND MINING COMPANY.

At a general meeting of shareholders held at the mine on the 1st inst., the accounts were examined and passed, showing—Labour cost for three months to end January last, 162*l.* 13s. 11d.; bills, 92*l.* 1s. 10d.; balance last account, 49*l.* 5s. 7d.=304*l.* 1s. 4d.—By call, 30*l.* per share, 18*l.* 10s.: leaving balance against the adventurers of 122*l.* 10s. 4d. It was then resolved, that the present amount of shares be doubled, in future to consist of 24*l.* parts; that a call of 1*l.* per share be made, payable immediately at the Devon and Cornwall Bank, Liskeard; and that the report and accounts be printed and circulated among the adventurers. The following reports from Capts. Nance and Taylor were read to the meeting:

Wheal Venland Mine, Feb. 25.—Since the last meeting, the cross-cut in the 30 has been extended north and south, and intersected two ledges. The south ledge is cut within 9 to 10 ft. of the shaft, underlying towards it at about 18 in. per finn.: we have driven it 2 fms. east and west of cross-cut—it is composed of pebbles and quartz, spotted with mica and copper ore. The appearance of the gossan in the ledge in the adit level further east, it will be advisable to force the driving east to come under it as soon as possible, where it is likely to be found most productive. The north ledge appears to be heaved or displaced by a slide, which has passed through it about 3 ft. above the bottom of the ledge, and brought the part of the ledge under the slide to within 3*l.* fms. of the shaft; this part is 10*l.* wide, of quartz and stones of ore. There are several other ledges seen at the surface to be intersected; one of them, a large ledge, is within 5*l.* fms. of the present cross-cut end. The shaftmen are making preparation to sink the shaft under the 30, as the prospect of finding deposits of ore in a deeper level is more likely than at the present depth, where the north ledge is cut by a slide. The situation of the south ledge is different, as the slide passed through it several fathoms above the 00 fm. level.

West Caroden Mine, Feb. 24.—Agreeably to your request, I have inspected Wheal Venland. I first examined the adit level, for 60 fms. in length, on course of ledge, to the south of the engine-shaft; I found the ledge 15 to 24 in. big, composed of gossan, pebbles, and soft spar, intercalated with copper ore and mica. About 13 fms. to the north of the south ledge I examined another ledge 2 to 3 ft. wide; this ledge contains a quantity of gossan on the back; but in the adit it is composed of pebbles, quartz, and mica. I then descended to the bottom of the engine-shaft, in the 30 fm. level, where there is a cross-cut driven north and south, and intersected two ledges. The south ledge has been extended 2 fms. east and west of the cross-cut, on the course of the ledge; in the eastern end it is 8 to 3 ft. wide, and contains a little copper ore—I would advise you to extend east on this ledge as expeditiously as possible, to come under the shoots of gossan in the adit level. I would also advise you to sink the shaft 10 fm. deeper, which, according to the present appearance of the ground (being much softer than it is further up), may be done for about 10*l.* per finn., exclusive of whin drawing, lift, &c. As the ledge cut to the north of the shaft appears to be heaved by the slide, it is very apparent that you must go deeper before you can reasonably expect to find it productive. Judging from the appearance of the ledges, and being so near the engine-shaft, you can intersect them at a comparatively small outlay. I have paid particular attention to the nature of the locality, being near the junction of granite and kilkis, and the properties of the strata. I find a great similarity between it and the Levant Mine, in St. Just, which has yielded so much profit. I believe it is much like Fowey Consols, East Crofty, North Roskear, and Wheal Seton Mines.

WHEEL TEPHENNA MINING COMPANY.

At a adjourned meeting, held at the Commercial Hotel, Camborne, on the 8th inst.—R. LANYON, Esq., in the chair—the committee, appointed at the last meeting to investigate the accounts, reported that they had examined them over a period of six years, to Jan. 1848—the result of which led them to believe, that they were generally correct, except in the matter of timber; the system of supply of, and mode of felling which, was objectionable, and threw great difficulty in checking the accounts. On reference to documents produced them, they consider that the sum of 240*l.* 2s. 8d. remains to be charged to the end of Dec. last. The following is the statement of accounts, showing balance of 212*l.* 19s. 4d. against the mine, besides arrears of 1032*l.* 2s. 9d., which may not be recovered:—Calls, 7840*l.* 16s. 6d.; ore sold, 7704*l.* 5s. 4d.; charged twice, 512*l.* 0s. 6d.=15,196*l.* 2s. 0d.—Labour cost, 18,039*l.* 14s. 4d.; balance, 2912*l.* 19s. 4d.

They recommended that, after the additional sum of 240*l.* 2s. 8d. for timber, was charged, and other charges, to Dec. last, the whole amount of costs, up to that period, be divided and collected by means of cash payments, or bills of two, four, and six months' date, the latter with interest; also all arrears not paid in two months, the defaulters to be sued; that the regular account meetings in future be held quarterly; that a committee be appointed, with power to borrow at the Miners' Bank to carry on the mine, as may be decided on at the next meeting. It was then resolved, that the report be received and adopted; that the purser's resignation cannot be accepted until the accounts to Dec. are fully settled; that the following gentlemen be committee for general purposes:—E. W. W. Pendarves, Esq., and Messrs. R. Lanyon, J. Rule, W. Symons, and T. Edwards—two to be a quorum; that such committee be authorised to borrow not exceeding 500*l.*; that a new set of books be obtained, and kept under the management of the committee; that the shares be divided into three times their present number, and that the amount of arrears and costs be collected as recommended; that the committee be requested to assist in collecting the said calls and arrears; that the salary of Mr. Newton be increased to three guineas per month; that N. Thomas be engaged as store-keeper at the mine, remuneration to be considered at next meeting; that application be made to E. W. W. Pendarves, Esq., for a reduction of dues; Mr. Pendarves having purchased a whin for 460*l.*, and having offered the use thereof at 7*l.* per cent. per annum on the amount, the same be accepted, subject to an option, at any time, to purchase at the above amount; and that the next meeting be held on the 19th April next.

IMPROVEMENTS IN MINING MACHINERY.

SIR.—I, months ago, proposed at Talaroch Mines, to make a trial of pumpa, as proposed by Mr. Sims, of Redruth, in your valuable Journal of the 4th inst., to supersede the use of horizontal or flat-rods for communicating power from the engine to other parts of the mine, with the following difference from Mr. Sims's invention:—I proposed that the pipe leading from one pump to the other, should, to avoid the necessity of air being admitted, be of as great, if not greater, area than the pumpa—thereby preventing the friction that would necessarily arise from the pipe being so much more confined than them. I also proposed a small cistern, with a valve in it, to contain water, to be placed where Mr. Sims proposes a valve for admitting air—the water in this cistern to supply any leakage that might ensue. I have not had a trial made of this plan, so I cannot tell how it might do; but, if Mr. Sims has had a trial made of his plan, he would, by communicating the result through the medium of the *Mining Journal*, confer a very great favour on many besides your humble servant.—R. DAVIES: Talaroch Mines, March 16.

THE COST-BOOK SYSTEM.

SIR.—Will you oblige me, through the medium of your valuable Journal, by answering the following question:—Whether in mines conducted upon the Cost-Book Principle, it is not an universal custom for a shareholder to have a vote for each share held by him? I believe the usage is different with the scrip-system:—W. S. GRAHAM: Wheal St. Ann, Thomas-street, Bristol, March 16.

The fundamental principle of the Cost-Book System, is, to prevent the small holder from being overpowered by those having a larger stake in the adventure; and, therefore, we think, gives to every holder one vote only, whether he hold one share or ten. Were it as our correspondent suggests, one, or at most two large holders, might, in many cases, dictate as they pleased to a score or two of others, to the great injury of their interests, and that of the undertaking generally. We speak of the principle; but believe there are instances, at the formation of the regulations, of a scale being adopted—such as 1 share, 1 vote; 5 shares, 2 votes; 10 shares, 3 votes; and 20 shares, 4 votes; 50 shares, 5 votes, &c., or any other arrangement which may be agreed upon. For further general information, we refer our correspondent to notices on this subject, in the *Mining Journals* of June 19 and Dec. 11, 1847.]

SLAVERY IN FOREIGN MINES.

SIR.—Your correspondent, who signs himself "Anti-Slaver," in his zeal against those who employ slaves in mining operations, has fallen into a most gross error. He says—"Although it is not generally known, the whole of the Mexican mines—nay, I may say, all the foreign mines (except those worked in our own colonies)—are, at the present moment, employing slaves, and them in large numbers, who are worked and treated in a most shameful manner; and an eye-witness states that their treatment is beyond all endurance."

If "Anti-Slaver" had not included *all* foreign mines, I should have considered that the word "Mexican" was a slip of the pen, and that he intended to write "Brazilian"; but as he appears to have written it advisedly, although ignorantly, I think it proper to inform him, and others who may be misled by his statement, that there is no such thing as slavery in Mexico—that every man, be his colour what it may, is as free as on British ground; and that, so far from the miners being ill-treated, they are very highly paid for their labour, and seldom work more than three days in the week. Thus much for Mexico; Brazil and Cuba may answer for themselves.—J. P.: London, March 18.

SLAVE LABOUR IN MINING OPERATIONS.

SIR.—I am rejoiced to find you are using your powerful energies to draw attention to this important subject, as connected with mining enterprise; it is a matter of such vital consequence to thousands and thousands of human beings, that you must not let it drop until the demands of humanity are fully satisfied. You are the only organ of the mining interest, and, therefore, peculiarly bound to look minutely into this dreadful matter. All the world declaimed against the slave trade, and every enlightened country seems delighted to express its determination to carry out emancipation. One of the first questions to which the Provisional Government of republican France directed its attention, notwithstanding the innumerable calls on points of home-interest, was the abolition of slavery; and M. Lamartine declares to the world, that France will continue England in this holy cause. Well may she do, for what is our boasted horror of slavery? That we allow British subjects to traffic in the purchase and sale of their fellow-

more to mind his own business, and not trouble himself about other people's affairs; and to be thankful that he can read and write, and that he is neither a "ploghboy nor a tallow!" If he is a shareholder, he can bring his grievances with him to a general meeting, and have a discussion.

I agree with "Observer," that many concerns in this neighbourhood have been ruined by the extravagance and recklessness of agents (query—in "Observer" a mining agent himself?)—but this is not likely to be the case at Tavy Consols, as the committee are men of business, and, I believe, the shareholders have the greatest confidence in their management. The captain is a persevering, industrious man, always to be found at his post, go when you will on the mine, and has the interest of the concern at heart.

Friend "Observer," art thou the Goliath, or the ball, or the lion? or art thou only one of the host of the Philistines? I suspect thou art the latter; but, wishing to be taken in, hast wrapped that noble animal's skin around thy shoulders, and, by thy noise, hast frightened thy neighbours. Be not deceived—thine own voice betrays thee.—**A PLYMOUTH SHAREHOLDER:** Plymouth, March 14.

Editor.—In the account of Tavy Consols Mine, in your last Journal, 2d line, read—“The adit level, and a 19 fm. level, and a 24 fm. level, are driven west to the cross-course.” Quine—For, “The mine has returned £600, worth of ore,” read “£6000, worth.”

BALNOON CONSOLAS.—At a meeting of adventurers, held on the 3d inst., the accounts were presented by Mr. Roscorla, the purser, and allowed, showing—Labour cost for Oct., Nov., Dec., and Jan., £661. 6s. 6d.; merchants' bills, £751. 11s. 10d.; surgeon, 22. 14s. 3d.; balance due to purser at last account, £382. 9s. 4d.—£683. 1s. 11d.—By tin, &c., sold, 737. 3s. 3d.; call of Nov. 16, 278.; leaving balance against the adventurers of £214. 18s. 8d.—A call of 30. 10s. per share was made.

CONSOLS MINES.—The two-monthly meeting of adventurers in these mines took place at the account-house, on Wednesday last, when the following accounts for Jan. and Feb. were submitted and passed:—By balance at last account, £801. 12s.; ores sold (less dues), 7591. 6s. 7d.—£9392. 0s. 7d.—To costs and merchants' bills, 7657. 15s. 10d.; balance in hand, 17857. 4s. 9d.

DEVON AND COURTEEN CONSOLS.—At a meeting of adventurers, held at the mine, on the 14th inst., the accounts were examined and passed, showing—Balance last account, 4822. 9s. 2d.; call, 4662.—together, 9482. 9s. 2d. By cost, Jan. and Feb., 5221. 6s. 4d.—leaving balance in favour of adventurers, 4261. 2s. 9d. It was resolved, that the explanation respecting the forfeiture of Mr. Treddinick's shares being satisfactory, and he having offered to pay the same back to the restored. A call of 5s. per share was made, payable immediately.

POLSAITH CONSOLAS.—The two-monthly meeting of shareholders was held at Wheal Gill account-house, on Friday, the 10th inst., when a call of 1s. per share was made.—The captain reported the cutting of the lode in the 12 fm. level below adit, on Trebetherick; when first cut it was dislodged by a slide, but which, after driving a few feet on, has become regular, about 2½ ft. wide, with a good branch of lead in the end, presenting altogether a very promising appearance. The water became too quick to be drawn by barrels. The meeting ordered the erection of the engine (which is on the ground) without delay. The water at Tinners Hill is also quick, but we are still able to keep it with barrels, and hope to continue to do so, to enable the cutting the lode there, which is expected to be done within a fortnight of this date.

WHEAL UNION.—A meeting of shareholders was held at Redruth, on Tuesday, the 7th, when the statement of accounts was produced, showing—To eight months' cost, ending Feb. last, 5032. 14s. 7d.; by copper ores sold (less dues), 962. 6s. 6d.; materials sold, 272. 18s. 8d.—£124. 5s. 2d.; showing loss, 979. 9s. 5d.—The following report was read to the meeting:—"Since the last account, the new shaft has been sunk from the surface to about 9 fms. under the adit, when, from the great floods and consequent excess of water, it was obliged to be suspended. It was determined on at the last meeting to continue the present scale of working until the water is abated, when the sinking of the new shaft is to be resumed; and we expect to be able to sink from 12 to 15 fms. with horse-power, which would be sufficient to show us whether we should remove the engine or not. The workings from Carn Brea are fast approaching towards Wheal Union with very favourable prospects, the distance being now about 80 fms."

WHEAL VVYXAN.—The statement of accounts to the 3d March shows:—To nine months' wages to 31st Dec., 3347. 4s. 7d.; water rents, 55. 11s. 10d.; dues, 164. 8s. 4d.; merchants' bills, 8602. 18s. 8d.—£4282. 3s. 5d.—By balances in hand, end of March last, 811. 18s. 5d.; copper ores, 4022. 1s. 9d.; tin, 2940. 9s. 10d.—£8424. 10s.: showing loss in nine months of 10082. 18s. 5d.—A call has been made of 5s. per share.

We received the following reports too late to insert in their proper place:—

CALLINGTON.—In the 40 fm. level east the lode is improving, and more regular; about 2 ft. wide, producing stones of copper ore. In the 70 fm. level east the lode is 24 fm. wide, producing stones of copper ore. In the 90 fm. level east the lode is 26 fm., which we have driven. In the 90 fm. level west, the great cross-course, the ground is favourable. In the 100 fm. level south the lode has been taken down; and in the 90 fm. level we are opening tributary lodes. In the 125 fm. south from Johnson's shaft, we have a small branch of silver-lead ore; in the north end the lode has not been taken down. In the 119 fm. south the lode is 46 fm. big—grey; in the north end no lode has been taken down. In the 100 fm. level north, we are driving through the north part of the south channel of evans; it is of a favourable character—the lode has not been taken down. We calculate on sampling 100 lbs of silver-lead ores this week.—March 13.

DRAKE WALLS.—At Brenton's engine-shaft, large and tiny branches—ground hard. In the slopes, below the 40, east of Brenton's shaft, good branches; in the slopes, west of machine-shaft, good branches; in the slopes, east of machine-shaft, below the 40, saying work; in the machine-shaft, sinking below the 50, very good branches; in the 33 end, east of machine-shaft, good branches—ground hard; this level has improved for a great length, compared with the ground over in the east-end part of the mine. The slopes behind this level have been suspended since my last, for the purpose of getting the end a little a-head of the stoppers, to prevent any hindrance that might otherwise occur. In the end, below the adit, east of footway shaft, small branches, not rich. At the new engine-shaft, branches small and poor. The end on north lode, going west from the Tamar, presents favourable indications for copper, being composed of strong gossan, greenish mudi, & a little copper, mixed, and in a favourable strata of killas.—March 11.

TAMAR SILVER-LEAD.—In the 175 fm. the lode is 18 in. wide, 1 ft. of which is good work. In the 160 end the lode is 2 ft. wide, producing a small quantity of ore. In the 145 end the lode is 2 ft. wide, saving work, but not rich. In the 135 end the lode is opened to a large size; we are therefore, carrying about 34 ft. on the west side, which is yielding work of a promising quality. In the last fortnight we have been repairing our large steam-whim, which has impeded our progress, but I am happy to say it is completed, and we are again progressing favourably. At the north mine, in the 70 end, the lode is 2 ft. wide, composed of capel, sand, and ore, saving work. In cross-cutting in the 60 fm. level, we have intersected a branch about 4 in. wide, but consider the main part of the branch is still further east. In the 60 fm. level we have cut the eastern lode which is about 10 in. wide—6 in. of which is work of a good quality. Our pitches are looking favourably. We sampled, on the 4th March, inst., 97 tons 3 cwt.s of silver-lead ore, which sold for 1515. 8s. 7d.—March 13.

ANTIMONY AND SILVER-LEAD.—We are glad to find that the mines in this neighbourhood are about to be prosecuted with vigour, particularly the Antimony and Silver-Lead Mines. As our part here abounds with both, there is only wanted a spirited company who will make an outlay; and there is no doubt but what they will get return worth while. Many years since, when the late Capt. Glanville and others worked the Antimony Mines here, they made good returns, and paid themselves well, and only gave up working on account of the failure of other speculations abroad; and now I see, by your Journal, that they are going to make white paint of antimony; there will be a good demand for it, and the price will go up in the market, which I am in hopes will make things brisk here.—Port Isaac, March 15.

WHEAL CURTIN.—The lode in the 30 fm. level is about 3½ ft. wide, producing good stones of copper ore. On Tuesday, the 14th, we purpose sampling the ore already dressed, which we judge will be about 30 tons.

[From the Plymouth Journal.]

WHEAL YEOLAND.—The engine-shaft has been sunk 9 ft. under the 12 fm. level; in the 12 fm. level, west of the engine-shaft, there is a good course of ore, and in the 12 fm. level east the lode is rich. The stamps are not as yet in full operation, but as the tram-road from the shaft to the stamps is in a forward state, they will be shortly. There will be a considerable parcel of tail ready for market in the early part of April.

EXMOOR ELICE.—The lode in the 18 fm. level continues to hold out great promise, being composed of gossan and rich ore. It is intended immediately to sink 10 fms., and drive to cut the lode. The reports of Capt. S. Scocome, Capt. Prior, and Capt. Whitford, are most encouraging.

WHEAL ANDERTON.—The lode under the 70 is improved.

PLANTER DOWN.—We hear that arrangements are on foot to set this mine to work. Above the adit level considerable quantities of ore have been raised.

WHEAL MUNDIN.—The leader of mundin in this lode is now upward of 2 ft. 6 in. wide, and is still increasing.

WHEAL CALSTOCK.—Small branches continue to be cut, as the junction of the lodes is approached.

WHEAL FRANCO.—There is no change in the pitches. In the 47, west of the cross-course, the lode is becoming more regular, and has a very promising appearance; in the 47, west of the cross-course, the lode is more perpendicular, is a good paying lode, and is fast improving. The quality of the ore from the 39 to the 47 fm. level, has very much improved; it is quite a different character. In the 62 fm. level, the capels of the lode were as hard as they were in the 47, and they appear not to be so thick. In our last we stated that, in addition to the profit in the last four months' working (3542. 12s. 3d.), and the balance in hand at the last meeting, there was £1000 worth of ore in hand. This is correct, but we are requested to add, that the cost for February, about £400, ought to have been deducted. We take this opportunity of saying that, our only object being to give correct information, we are obliged for this, as we shall be for all future corrections, although for the omission in this instance we are not answerable.

MINE ROBBERS.—On Monday last, a man, called Richard Bryant, was committed by C. W. Popham, Esq., to take his trial at the assizes, for stealing tin from Great Work Mine, in the parish of Breage. When taken into custody, he had concealed in a bag, which was concealed under his clothes, 17 lbs. weight of tin. On a search being made, upwards of 3 cwt.s of tin was found buried in his garden. About six weeks ago, a man, called Palmonin, was committed for a similar offence.—On Saturday night last, or early on Sunday morning, some persons, or persons, entered the account-house of North Roscarla Mine, and carried off a large quantity of underground clothes belonging to the agents, which appear to be all that was sought after, as several articles, which lay contiguous, were left untouched. There is no clue to the apprehension of the thief.—West Briton.

GREAT WHEAL FREDERICK MINE

We are unable to make any particular announcement respecting the legal proceedings commenced by Mr. F. S. Thomas against this Journal, for the publication of some correspondence commenting on the formation and management of a company to work the Great Wheal Frederick Mine. On Monday last, we addressed Mr. Thomas's solicitors (Messrs. Dean, Leeks, Dixon, and Redpath, of St. Swithin's-lane), informing them that the writer of the letters signed "Vox," had instructed Messrs. W. and G. T. Woodroffe, of Lincoln's Inn, to meet any proceedings they might be desired to take—at the same time, suggesting whether the matter could not be arranged by mutual explanation through our columns, without incurring legal expenses; and to which communication we have not yet received a reply. We should suppose that Mr. Thomas has decided on adopting the more prudent course we recommended, to that of hazarding the verdict of a jury—we await, however, an intimation to that effect.

CORNWALL NEW MINING COMPANY

We are always happy to announce the formation of new companies, formed for the purpose of carrying out mining operations to a large extent, and legitimately embodied for working the capital employed, with that judicious economy which shall secure the pecuniary interests of the shareholders of which such companies are composed. Injudicious, and not always honest, expenditure has been the rock on which many a body of shareholders have split; while more spirited and economical parties have afterwards come in, and reaped immense benefits from a former company's folly and expenditure. We have before us a prospectus of a new company under the above title, formed for working a series of tin and copper mines, principally in the St. Ives district, and proposing, by a cautious selection of those which have been, by judicious workings, not only proved to be rich in minerals, but which will not require an extravagant outlay to render them permanently profitable. The mines at present selected to commence operations on, are Georgia Tin Mines, Treworth Tin and Copper Mine, Bray and Trevarno Tin and Copper Mines, and Wheal Squire Tin and Copper Mine. The prospectus states, that these mines are so far developed as to enable the committee, with great confidence, to consider them as a source of great wealth; and, from the description of the various localities in the neighbourhood of some of the old best producing mines in the county, we should think the hopes of the committee to be well founded. The capital is £100,000, in 20,000 shares of 5s. each—21. 10s. payable in 18 months; and all further calls to be controlled by the subscribers themselves, and not to be made until dividend has been paid. A respective provisional committee of six has been formed, with two auditors, and the company will be conducted under the Joint-Stock Companies' Act, 7 and 8 Vic. c. 110.

EAST BIRCH TOR TIN MINING COMPANY

This mine, situate on Dartmoor, in the parish of North Bovey, 18 miles west of Exeter, and 14 east of Tavistock, has just been taken up by a company, with the intention of a spirited and rapid development of its riches, which, from the quantities already taken from the surface, and the improvement at the present shallow depth (12 fms. under adit), bids fair to equal its neighbour—the Vitifer, or Birch Tor Mine—from which great quantities of tin have been taken. The sett runs 1500 fms. on the course of the lodes, 500 in breadth, and is held for an unlimited term of years, at 1-25th dues, provided four miners be continually employed. No outlay will be required for machinery, pitwork, &c.—there being all on the mine such as pitwork, water-wheels, lifts, stamps, workshops, buildings, &c.; and the first outlay will be to sink the shafts, drive levels, extend the operations, and prepare ore for the market. The capital for this purpose is fixed at £5000, in 2500 shares, of 2s. each. There is sufficient surface water to prosecute the mine to a considerable depth; and, from the reports of the agents, there is every appearance of an immediate return and lasting profit. Tributaries are now working on the backs.

TIN VALE MINING COMPANY

We received the following report too late to insert in its proper place, among the Mining Correspondence, where, however, one of a previous date will be found:—"Tin Vale Mine, March 15.—I am happy to inform you, that I have two pairs of tributaries, both east and west, on the north lode. The names of the men are Henry Hooper and Charles Colwell, east of the cross-cut; and Edward Bevan and Thomas Gregory, west of the cross-cut; they are good tinners, and are getting fair wages, at 10s. in 11s.—this is in Rose's adit; in the same adit, about 2 ft. poor at this time. The stopes, in the back of this level, look well, having nearly 20 fms. of good ore ground, out of about 26 fms., which we have driven. In the 90 fm. level driving towards the great cross-course, the ground is favourable. In the 100 fm. level south the lode has been taken down; and in the 90 fm. level we are opening tributary lodes. In the 125 fm. south from Johnson's shaft, we have a small branch of silver-lead ore; in the north end the lode has not been taken down. In the 119 fm. south the lode is 46 fm. big—grey; in the north end no lode has been taken down. In the 100 fm. level north, we are driving through the north part of the south channel of evans; it is of a favourable character—the lode has not been taken down. There is a great deal of water issuing out of this end, insomuch that I think we are near some lode, or branch. I have also to inform you, that I have two horses and carts drawing good tinstuff every day, except Sundays, to supply our stamps; and the tin is a great deal better than I expected, and the stamps are thumping the tin out in first-rate order, insomuch that I will shortly put in a good batch from Rose's adit. I have also to inform you, that I have about 400 of stream tin, fit for the market, and we are still getting more from the streams. Floyd's adit I have suspended for a little while, as the air is very bad, and have taken the men out of the end, and put them to rise and sink for ventilation, which I hope will be completed next week.—JOHN FLOYD.

SHROPSHIRE IRON-WORKS.—We are happy to hear that the colliers and miners have commenced work, at the reduced wages. It is to be hoped that things will be better.

DOLWAS IRON-WORKS.—We are exceedingly rejoiced to learn, on very good authority, that the temporary arrangement of the differences existing respecting the renewal of the Dolwas lease has been followed by a permanent adjustment of the matter, and that those magnificent and extensive works will be resumed with increased energy and vigour.—Cambrian.

TRADE IN MANCHESTER.—From the official report, up to Tuesday, it appears that of 208 mills, foundries, &c., within the borough of Manchester, 113 were working full time with full hands, 29 full time with short hands, 48 short time, and 18 stopped. Of 44,531 hands, 30,965 were working full time, 5616 short time, and 7950 were out of employment.

RAILWAY TESTIMONIAL.—Mr. E. Mackenzie, the superintendent of the works on the line of railway from Orleans to Tours, has, on the opening of the line, been presented with a magnificent service of plate, of French manufacture, by the workmen and other persons engaged on the railway under his superintendence. So appropriate a mark of the esteem in which this gentleman was held by the various employés on this line of railway, both on account of his abilities in having brought the works to a successful termination, and of his treatment of them in their subordinate capacity, is equally honourable to them, and to the recipient of this flattering mark of their commendable appreciation.

KIRTON TUNNEL.—The mining at the Kirton Tunnel was completed on Tuesday last, and that portion of the Manchester, Sheffield, and Lincolnshire line between Grimsby and Gainsborough, is to be opened on the 1st July next.

GREAT NORTHERN.—The works on the line, through Doncaster and neighbourhood, still continue to progress rapidly and satisfactorily.

SCOTTISH CENTRAL.—On Thursday last, Viscount Duncan was unanimously appointed chairman of the board of directors of this company, vice the Marquis of Breadalbane; and Mr. Bruce, of Kennet, vice-chairman, in consequence of the resignation of Major Moray Stirling, of Abercairny, from indisposition.

SYTON AND PETERBOROUGH RAILWAY.—There is at length a certainty, that this railway will be opened throughout for the transit of goods and coal, on Monday, the 20th inst.

SOUTH YORKSHIRE.—A considerable number of hands is now employed on this line, and the blasting of the rock at Levitt Hag, for the deep cutting, commenced a few days since. The work on this portion is very heavy, and will, probably, occupy considerable time.

BIRMINGHAM AND OXFORD JUNCTION RAILWAY—THE WAR OF THE GAUGES—RENEWAL OF HOSTILITIES.—The half-yearly meeting of proprietors, adjourned a second time from the 4th inst., was held on Saturday last, at Birmingham. It will be recollect that the object of the last adjournment was to receive the result of the negotiations stated to be in progress between the dissentient shareholders of the Birmingham and Oxford Company and the directors of the Great Western, founded upon the propositions made by Mr. Dobie, the solicitor to the former body. After a long discussion, Mr. Mozley moved "that the Great Western Company be forthwith formally called upon to deliver to the shareholders of this company who have paid their calls, the securities now due to them under the agreement of the 12th of Nov., 1846; and in all other respects to carry out that agreement, and that Mr. Dobie write to them requiring their compliance with such demand within one week from this date." This resolution was carried, and the meeting was adjourned to the 23d inst., at the Adelphi Hotel, Liverpool. After this meeting, an adjourned special meeting was held, to consider a bill to enable the company to make deviation lines from Leamington to Warwick, &c. A resolution, moved by Mr. Mozley, that the bill should be opposed, was carried, as was another; that the present solicitors of the company be no longer employed, but that Messrs. Golmoe and Baile be retained as such. This meeting was also adjourned to the same day and place as the other.

THE CHINESE JUNK.—A correspondent of the *Globe*, writing from Jersey, states that, on the 10th inst., a Chinese junk had arrived in that island. She was supposed to be that which attracted so much attention at New York, and it is reported, that she has on board some valuable presents for the Queen.

THE WHOS LAST SHIFT.—There is some talk of repealing the duty on copper ore. Our

LATEST CURRENT PRICES OF METALS.

LONDON, MARCH 17, 1848.

From	Bar	Wt.	£	s.	d.	£	s.	d.
Bar	Wales	6	0	7	0	COPPER—Ori. bottoms	0	0
London	..	0	0	8	0	YELLOU METAL-SHEATHING	0	0
..	..	0	0	9	6	TIN—COP.—blockag.—Ori.	0	0
Nail rods	..	0	0	10	0	“ bars	0	0
Hoop (Staf.)	..	0	0	10	0	Refined	0	0
Sheet	..	0	0	11	0	“	0	0
Bars	..	0	0	9	10	Strata	3	16
Welsh cold-blank	..	4	0	4	10	“	3	17
foundry pig	..	4	0	4	10	Banca	0	0
Scotch pig, Clyde	2	4	2	6	0	TIN-PLATES—Cl., &c., for	1	7
Rails, average	..	0	0	7	10	“ IX	1	13
Chairs	..	0	0	5	6	Coke, IC	1	4
Russian, CCND.	..	0	0	17	10	“ IX	1	10
PSI.	..	0	0	—	LEAD—Sheet & ..	0	0	
Gouleff	..	0	0	—	Pig, refined	0	0	
Archangel	0	0	13	0	“ common	17	5	
Swedblad, on the spot	0	0	11	10	“ 17	10		
Steel, fast,	0	0	16	0	Red.	0	0	
keggs	13	10	14	0	Dry White	0	0	
Tough cake	..	0	0	88	10	“ 24	0	
Boat selected	..	0	0	91	SPELTER—(Cake) on spot	0	0	
Ordin, sheets, &c.	0	0	0	10	“ for arrival	15	10	
Quickeisilver	..	0	0	0	ZINC—(Sheet) in export	0	0	
Discount 2½ per cent.	..	0	0	0	“	0	0	
in legs 4 & 4-inch.	..	0	0	3	“	4	6	
Discount 3 per cent.	..	0	0	4	Ditto	0	0	
in ft. bond.	..	0	0	4	“	0	0	
Discount 1½ per cent.	..	0	0	4	“	0	0	
for home use it is 32½ per ton.	..	0	0	4	“	0	0	

[FROM OUR CORRESPONDENTS.]

The demand for all kinds of metal continues very dull; prices are, however, maintained except for Scotch pig-iron, which is 1s. to 2s. lower; and for spelter, on which we have a reduction of 1s. per ton. It is, however, but fair to mention, that, although the current price is 16s. per ton, some holders are prohibited, by their consigners, from selling under 18s. per ton.

GLASGOW PIG IRON TRADE, MARCH 16.—The unsettled state of affairs in France has checked the shipment of pig-iron to that country. This, and the circumstance of one of the largest holders selling freely this week, have caused a considerable fall in the price of the article. We quote the price of mixed Nos. to-day at 43s. to 43s. 6d. cash.

EXPORTS OF ENGLISH AND IRISH METALS AND MINERALS.—The following particulars are extracted from an account of the exports of the principal articles of British and Irish produce and manufactures in the 12 months ending on the 5th January, 1846, 1847, and 1848, as follows:

Coals and culm	1846.	1847.	1848.
£973,635	£971,174	£976,377	
2,88,182	702,166	834,151	
357,421	262,547	292,038	
2,183,000	2,180,587	2,346,255	
904,961	1,117,470	1,328,091	
3,501,895	4,178,036	5,272,942	
1,694,441	1,058,187	1,467,498	
291,974	147,170	181,771	
48,777	107,456	156,098	
615,729	639,223	459,265	
Salt	218,302	205,005	260,591

The total amount of exports shows—in 1846, 53,298,026l.; in 1847, 51,227,060l.; and in 1848, 50,897,790l.

NEW PATENTS.

H. B. Hobnail, Oxford, goldsmith, for improvements in studs and buttons.

G. Coode, Haydock Park, Lancashire, for an improved method, or methods, of distributing over land liquids and substances in a liquid or fluent state, and certain improved apparatus and machinery employed therein.

J. Ashbury, Openshaw, near Manchester, for certain improvements in the construction and manufacture of wheels for use upon railways and common roads, and in the methods of preparing and constructing the tyres used thereon.

A. Allott, Lenton Works, Nottingham, bleacher, for improvements in spring apparatus and in balances, also in breaks, and in the means of working breaks.

J. Porritt, Eddenden, Lancashire, for certain improvements in carding-engines, for carding wool and other fibrous substances.

F. W. M. Collins, and A. Reynolds, both of Charterhouse-square, Middlesex, engravers and printers, for improvements in the art of ornamenting china, earthenware, and glass.

J. Hosmer, New Cross, Surrey, surveyor, from improvements in apparatus for supplying water, and for cleaning drains and sewers. —Mechanics' Magazine.

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgh.	Present ac-	Price	Last	Traffic Returns.
Rway.	ttual cost.	per share.	Div.	1848	1847
Abroath and Forfar	16	£179,939	25	4 p.c.	£ 212
Birkenhead, Lancashire, & Chesh.	156	706,793	37	—	509
Caledonian	130	3,594,470	29	—	2568
Dublin and Drogheda	35	733,655	52	8½	715
Dundee, Perth, & Aberdeen Junc.	72	473,282	—	7	604
East Anglian (Lynn to Ely)	55	1,062,742	7½	—	487
East Lancashire	24	1,733,915	18	—	958
Eastern Counties	221	7,698,370	13	5	10,020
Eastern Union	50	979,926	60	—	1005
Edinburgh and Glasgow	53	2,375,745	37	6	3119
Edinburgh and Northern	29	953,207	18	—	1003
Glasgow, Paisley, and Ayr	64	1,890,547	8½	7	2058
Glasgow, Paisley, & Greenock	23	828,964	16	3	224
Gt. Southern & Western, Ireland	110	1,876,326	18	—	1929
Gvt. Western	2812	10,970,636	92	7	16,536
Kendal and Windermere	104	169,888	23	—	114
Lancaster and Carlisle	70	1,395,193	45	4	1497
Lancashire and Yorkshire	124	6,807,314	86	7	9024
London and North Western	428	21,513,354	128	8	34,886
London and Blackwall	4	1,146,289	4½	4	684
London, Brighton, & South Coast	152	6,087,822	30	4	6205
London and South-Western	189	6,264,164	47	8	6296
Londonderry and Enniskillen	144	160,013	16	—	157
Manchester, Sheffield, & Lincolnsh.	46	2,336,624	80	5	1990
Marystown and Carlisle	28	424,417	39	3	479
Midland Company	402	8,658,604	99	7	18,955
Midland Great Western (Irish)	362	583,776	10½	—	872
Newcastle and Carlisle	664	1,184,090	101	6	2003
Norfolk	813	1,375,633	60	6	1642
North British	78	2,514,150	21	5	1811
Shrewsbury and Chester	17	591,158	11	—	608
South Devon	29	1,339,660	20	—	744
South-Eastern	165	6,398,218	23½	6	6,686
Taff Vale	38	785,607	—	5½	1901
Whitehaven Junction	12	147,095	—	6	166
York, Newcastle, & Berwick	2364	3,685,102	29	9	10,063
York and North Midland	2304	3,196,869	60	10	7474

FOREIGN RAILWAYS.

Antwerp and Boulogne	68	573,338	5½	4	1324
Antwerp to Ghent (monthly)	31	—	—	—	1100
Bulgaria	—	—	—	—	—
East Rhineish	57½	—	—	—	—
Northern of France	211	2,000,000	2½	4	—
Orient to Bourges (Central)	107½	—	—	—	2404
Orleans to Tours	72	600,000	32½	4	2820
Paris and Orleans	82	2,011,720	23	124	7581
Paris and Rouen	85	2,082,916	16½	11½	7206
Rouen and Haar	59½	—	10½	4	2789
Strasburg and Basle (monthly)	88	—	6	12	5237
West Flanders (ditto)	—	—	6	12	6169

Total earnings for last week, £160,036, being an increase of £22,164 over last year.

JOINT-STOCK BANKS.

Shares.	Companies.	Paid.	Div.	Per cent.	Price.

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NOTICES TO CORRESPONDENTS.

It will at all times save much trouble, and frequently considerable delay, if communications are simply directed—

To THE EDITOR,

Mining Journal Office,

35, FLEET-STREET, LONDON.

Also, to avoid trouble, Post-Office Orders should always be made payable to WILLIAM MANSSELL, as acting for the proprietors.

We should feel obliged to all persons, captains, or adventurers, to forward particulars of meetings, &c., of the mines with which they may be connected, on the earliest opportunity, that they may be published in the Journal with as little delay as possible.

GLOSSARY OF MINING TERMS.

We are preparing for publication, as a neat pocket volume, our Glossary of English and Foreign Mining and Smelting Terms. The new edition will comprise several corrections in the Cornish Terms; also, the additions with which we have since been favoured by correspondents—comprising those of South Staffordshire and Newcastle.

MARSH HILLS MINE.—We have received, from a correspondent, some rather severe remarks on the system of management pursued by the directors of this company; but, as their insertion previous to the meeting, might be considered a pre-judgment of the parties, and to improperly influence the shareholders, we have withheld their appearance until our next. The letters we have already published, with those in our present journal, ought sufficiently to awaken the proprietors to a proper sense of duty, and prompt them to exertion in securing a proper and economical management of their property.

TAVY CONSOL.—We are obliged to Mr. W. H. Parker for his letter, but we must decline publishing any further communications respecting this mine, other than the official reports. By three letters, which we received yesterday, from Plymouth—Geo. Partridge, 10, Cornwall-street; "Justitia," Sumer-place; and "A Shareholder," 18, Cornwall-street—it would appear that much interest is felt in the mine at that place: could not the parties convene a meeting, and request the captain to attend? when the actual state and prospects of the said could be ascertained.

THE IRON TRADE.—"An Old Subscriber" is anxious to obtain "the general sizes and average monthly returns of the blast-furnaces of Sweden and the continent generally, so far as it may be possible to be gathered." This information would be generally interesting; and we should feel obliged to many of our correspondents who would favour us with it.

Bristol.—See an article on the subject in the *Mining Journal* of the 11th Dec.

We have already published the problem of "J. W.", and we cannot see the necessity of repeating it in its altered form. We shall, however, readily afford space for a solution. We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses; not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

The *Mining Journal* is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news-agents, at the Royal Exchange, and other parts of London.

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, MARCH 18, 1848.

The commercial and trading interests of the kingdom have, in no sense, rallied, or improved, in an appreciable degree, throughout the week just concluded. Things are, perhaps, a shade steadier—the vibrations of the pendulum of the European exchanges are a little less intense than they were a fortnight since—the confidence of mercantile men is, in some small degree, re-assured; but trade, as an active element—business, as a general occupation—continues in a state of painful depression. There is no successful reasoning against facts—no strength of asseveration can prevail against the force of truth. We have, it is undeniable, almost at our doors, a vast organic change—a total reconstruction of the political elements in favour of, it is alleged, popular freedom and human progress; but we have also the fountains of trade broken up, and public industry paralysed—it is a heavy price to pay for a change so questionable and so perilous. However, we are bound to hope the best, and shall be content with any alterations that do not endanger public security, nor invade public repose. Our account of mining transactions, in last week's Journal, will have apprised our readers of the full and handsome character of the dividends which some of the mines have recently conveyed to the pockets of their proprietors; these same mines, and others we can enumerate, are going forward in the same career of success, and will shortly be declaring dividends of a similarly-favourable character. From these statements, the public will see, that mines, taken together, offer advantages to the investment of capital, which are not surpassed by the most popular kinds of stock to be found in this, or in any other country. The shares in prosperous mines continue at a reasonable price—in fact, are procurable at a lower figure than they would have stood at, had not the recent agitations in the political world kept all descriptions of stock down almost at the freezing point, or at an humble elevation, not much above it. Money, in the great market, continues in abundance; and we hold to the opinion, formerly expressed, that prices in general, as a matter of necessity, must go up so soon as ever commerce is released from those irregular and transient causes, which fetter her aspiring wing.

Since the revolution in Paris, public attention has been exclusively directed to the daily news from the continent; and a period must still elapse, to ascertain the political construction of the National Assembly, before the public mind will confidently return to the advancement of their investments at home, depressed in value by the present position of affairs in France. The important point next to be developed, is the political character of the representatives to constitute the National Assembly—the number of them (900) being considerable, and the pay (25 fr. per diem) attractive to the ardent Republican party.

In the interim, there is the additional disorganisation arising out of the failures of some of the Paris bankers, and the determination of others, of high reputation, to suspend further business. The determination of these important capitalists to retire from business—at all events, for the present—and the feeling shown amongst the élite of the National Guard against the candidates of M. Ledru-Rollin's extreme views, will strengthen the *moderé* party, and give hope for the provinces sending to the National Assembly a majority that will promote greater confidence than now exists, allowing for the majority of the Provisional Government having the best intentions. France will have enough to do to regulate her own domestic concerns, with which neither England, nor the other important powers, intend to interfere. England and Prussia have openly declared this intention; and the Austrian Ambassador having received instructions to remain at Paris, demonstrates this policy will, likewise, regulate Austria; and there is no reason to anticipate any deviation from this course on the part of Russia, as any contrary movement would be ineffectual without the concurrence of Prussia and Austria. Before this revolution in France, it was fortunate a constitution had been granted to Piedmont, Tuscany, and Naples; and it is satisfactory to see, from the Sicilian advice, expectation is entertained that, through the mediation of Lord Minto, the affairs of that island may be settled.

The economs continue to be favourable for concessions to the Lombards from the Austrian Government; and the reforms in the small German states are being carried out in a way to strengthen the imperial and federal power in Germany; and the *Times*, in its publication of yesterday, remarks these events are "auspicious for the peace and prosperity of Europe, and, in all respects, conformable to the permanent continental interest and policy of Great Britain." Hence, all the passing continental occurrences tend to remove apprehensions of war; and if to the influx of capital into Great Britain is added, with the blessing of Providence; a good harvest, the reaction in the funds, and other eligible securities in railways, &c., will reappear with renewed vigour.

It has repeatedly been our painful duty to have to call attention to the unjust conduct of parties—shareholders in mines—in withholding payment of their calls, and, consequently, their quota of the said debts incurred, and of the capital necessary for the spirited prosecution of the undertaking in which they have embarked. It

is, unfortunately, too common a case, and one which has led to the detriment, and even upset, of many a valuable mine, that parties who have paid a first deposit, and probably a call, should the concern not prove immediately profitable, hang back, and refuse to, or at least refrain from, fairly meeting their fellow adventurers, and subscribing in equal portions, *pro rata*, of the costs incurred of a first outlay in opening the mine—while should a sudden burst of good fortune attend their proceedings, such parties would be the first to press forward and claim their right as a shareholder. Such conduct—while it is absolutely unjust to their co-adventurers who do pay—is exceedingly unwise, as tending to bring the undertaking into dispute, cause the merchants much doubt and dissatisfaction in the supply of materials, and eventually, unless calls are rigidly enforced by the purser or directors, ultimately stop the mine, which is then probably taken up by another party, who set it in earnest, and with proper spirit, to develop its resources, and probably make a valuable discovery, to the chagrin of the previous adventurers, and particularly to those shareholders whose conduct alone led to their own losses and those also of their co-partners. It would be well if in all mining companies a rule could be acted upon, in future, either to sue defaulters after a definite and certain time, or else at once advertise the names, and forfeit their shares for the benefit of the company. Every man goes in to an adventure with his eyes open, and he ought to be compelled to stand the brunt of the battle equal with the rest of the adventurers; and if the above plan were rigidly enforced, few would relish the exposure, and calls be much more promptly met.

In another column, will be found a report of the meeting of the SOUTHERN AND WESTERN MINING COMPANY OF IRELAND—the directors' report read to which we published in the *Mining Journal* of the 4th inst., and which document requires some explanation. From the statement of the accounts there given, it would appear as if the entire sum of £5,587l. 17s. 8d. was expended, with the exception of the 1114l. 14s. 11d. in the banker's hands—while such is not the case, as the 19,827l. 10s., stated to have been paid to the Gartavallig proprietors, was not in money, but as part payment of 8000 shares, with 50s. per share considered paid up—the Gartavallig proprietors being still creditors for 69 shares. The capital divided into 10000 shares, at 50s. per share, thus left 2000 shares to sell for cash for working the mine, and, therefore, stands thus—

Capital	£5000 0 0
From Gartavallig proprietors	1000 0 0
Instalment on deposits	37 17 8
Deposits on 69 shares to be accounted for to Gartavallig proprietors	172 16 0
.....	£5210 7 8
Yet due on unpaid calls	450 0 0
.....	£5760 7 8
Labour cost, materials, building, &c.	£2880 15 0
Expenses of charter and conveyance of lease	1764 17 9—£4645 12 9
Balance at banker's	£114 14 11

This exhibition shows that the large sum of £5,587l. 17s. 8d. was not expended—the item of £2880l. 15s. being all the cost for labour, materials, building houses, forges, bucking and cobbing houses, floors, ponds, water-courses, &c., which cost about £3000—leaving little more than £1500 for exploring 475 fms. of ore ground, cross-courses, &c. We understand that the principal part of ground is yet whole—that is, that very little has been stoned away, but more ground is being opened upon; and, from the size and quality of the lodes, there is little doubt of complete success, and that the shareholders may congratulate themselves on having a valuable mine.

We at all times regret, and, indeed, feel pained, to hear of anything (particularly when connected with mine management) savouring in the least degree of misplaced confidence, and abuse of power and trust, more especially when the parties entrusted are placed at the head of large and expensive establishments, and are individuals moving in a circle of great respectability, no matter what their origin. It is not in our nature, neither is it in accordance with our practice, generally to be pointedly personal; still, when we see a large number of persons misled, and unjustly suffering, either in a pecuniary point of view, or otherwise, by the commissions and omissions of one or two, at most, then we think, should such practices be permitted to pass unnoticed and unchecked, that a repetition of them would tend to throw suspicion and distrust, if not discredit, on mine management at large.

We shall refrain from going minutely into the particulars of the cases alluded to—suffice it to say, that more than one mine, in a highly-important and well-known mining locality, is, at this moment, suffering to an alarming extent from the effects of a species of misfortune. We understand, in reference to one of the mines in question, that the adventurers, during the last 15 or 18 months, have been led to expect the payment of dividends; but, to their utter dismay and surprise, at an audit of accounts, recently held, there appeared to be a balance against the mine of some thousands of pounds; and, instead of a dividend, a call to a serious and heavy amount was necessarily the consequence.

But why, it may be asked, did not the adventurers look into the matter themselves, and call a meeting, and demand a production of the books? Because, it may be answered, the adventurers generally were not in a position to help themselves, from the fact of the parties having the management being so thoroughly under the wing and protection of patronage and power, that by representations and misrepresentations, things were so ordered and managed, as to suit their own individual ends and purposes—*vide the result*.

May there not be *Guizots* (so far as oppression, deception, and tyranny go) in certain mining localities of England, as well as their proposed measures who meet with the approbation of their head and king?—and, so long as they succeed in blinding him with one-sided reports and half-sided statements, so long, assuredly, will they continue to lord and ride over all those who come within the pale of their jurisdiction—to wit, the adventurer often as a dependent, the sub-agent, too, often as a mere automaton, and the labouring man, alas! too often as simply a beast of burden. May the fate of Gurzor operate as a timely and salutary warning to all those into whose hands are placed the reins of mining or political Government—for surely, sooner or later, a day of reckoning will come.

GOVERNMENT CONTRACT FOR COALS.—On Thursday last, the 16th Inst., the Commissioners for executing the Office of Lord High Admiral of Great Britain and Ireland, concluded a contract for supplying and delivering at Malta, 5000 tons of coal, fit for the service of her Majesty's steam-vessels. There was strong competition for the contract, which was taken at full 25 per cent. less than the price paid in January last. It is stated, that Government intends to use the experiment of employing English and American coal mixed, for the sake of economy, but also for the sake of facility of transport.

THE IRON TRADE.—Notwithstanding the general stagnation which has so long unfortunately existed in the iron trade, it is to be hoped that a reaction is about taking place, and that as the spring advances the furnaces will be in full activity. In the hope of this better state of things, some of the masters are in some degree preparing themselves for orders. We understand, that at the Capiorn furnaces of Messrs. Bagnull and Sons, near Bilston, and under the management of Mr. W. Murray, the 'make' of iron during the fortnight ended March 8 inst., was 945 tons from three furnaces, or 157s. tons, for each furnace per week. The furnaces stood idle 28 hours out of the fortnight. We trust another month will show considerable activity in the trade.

RAILWAY IRON.—An importation of nearly 400 bars of railway iron has taken place by a vessel arrived from New York. This is one of several arrivals of the kind which have taken place from the United States of America.

PROGRESS OF FRENCH MINING INDUSTRY.

[FROM OUR FRANCE CORRESPONDENT.]

As was to be expected, the revolution has led to a financial crisis, and this crisis has been the great topic of conversation, and the great subject of public anxiety, during the past week. The crisis has been most disastrous—it has occasioned the suspension of payment of some 15 or 18 banks, among which are those of Gonin's, Charles Lafitte's, and Ganneron's; it has broken up several large commercial establishments; it has brought down the funds, railway shares, and shares in all enterprises whatsoever; and it has caused most serious embarrassment and loss to all trades, and almost to everybody. Last, but not least, it led to a run for specie on the Bank of France.

This ran the bank bare manfully on Monday, Tuesday, and yesterday; but yesterday afternoon it became evident that it could not hold out much longer, unless some extraordinary measures for its relief were to be taken. Accordingly, it applied to the Government, and this morning a decree appears in the *Moniteur*, declaring, that *bank notes shall henceforth be a legal tender, and that the bank shall not be called on to pay them in specie*. The bank is, moreover, authorised to issue a number of new notes of 100 fr. (4/), but the amount of all its issues is not to exceed 14,000,000. sterling.

Very few transactions, indeed, have taken place, during the crisis, in mines, or metallurgical enterprises. In the Vieille Montagne, however, a purchase of shares was effected on Monday, at 2500 fr., being a fall, at one fell swoop, of 3000 fr., or 120. Yesterday, they were done at 2200 fr.—another fall of 12. This is dreadful, and yet it is not equal to what some other concerns have suffered—the Bank of France, for instance, in the Lyons Bourse, shares in the mines of the Loire were last sold at 315 fr.

Things here are deplorable; and yet, perhaps, on the whole, there is no reason to despair. If all remains tranquil, they will soon improve, and that all will be tranquil, there seems, at this moment, a fair assurance. The only thing with respect to which serious alarm was entertained, was a circular of M. Ledru Rollin, the Minister of the Interior, in which he invested his agents in the provinces with excessive powers, and recommended them to carry the elections with a high hand, and, in fact, employ downright intimidation. The middle class of society seeing that this not only threatened to deprive them of all influence, but went to prevent the peaceful exercise of their rights, made such strong representations on the subject to the Government, that the circular has been withdrawn. It was even said, that M. Ledru Rollin would be turned out of the Ministry, but this is untrue. It is certain, however, that he will never think of acting on his circular; and, consequently, all immediate prospect of a collision between different classes of society is removed. Observe, however, I am only speaking of the present moment; there is no saying, that another topic of discussion may not arise to-morrow.

The Minister of Marine announces, that on the 30th March, he will receive offers for the supply of 2500 tons of English coal for Gorea, and of 1200 tons of English coal for St. Louis, in Senegal. This announcement affords me an opportunity of mentioning, that several persons whom I have consulted, express a confident opinion that no serious apprehension need be entertained by the English, of their being compelled to lose their exports of coal to France, whatever may happen in this country. If there should be domestic anarchy, the manufacturers, &c., which at present use English coal, would, no doubt, be partially closed, whereby the consumption would be so much diminished; but it is said, that this diminution would be made up, by the necessity of supplying the colonies and the places which at present draw part of their coal from France. And if there should be war, the demand for English coal, far from being lessened, would be greatly increased, for the steamers would have to depend exclusively on it. Even a war with England, it is said, would not materially affect the demand—supposing it did not actually increase it.

Strange as it may appear, in the midst of such tremendous political excitement, I assure you that, as the *Mining Journal* has already intimated, there is a prospect of such a revision of the tariffs as would favour the introduction of our iron, &c., into this country—in fact, in my humble opinion, the prospect has never been so bright. In several of the newspapers, and in a great many of the clubs, it is broadly laid down, that the day of monopoly and privileges, has passed away for ever; and the principle that the working classes have an undoubted right to demand the admission, duty free, of all raw materials, and more especially of iron, is also insisted on. This is very encouraging, and the more so, when we reflect that the National Assembly will be composed mainly, if not wholly, of the very class to whom such doctrines will be peculiarly acceptable. It cannot be supposed that that class, after declaring all men equal in rights, and after abolishing all privileges and all titles of nobility, will allow the nation to continue to support an odious burden of taxation, for the benefit of a small band of monopolists, who have for years wrung millions upon millions from the people, without rendering the slightest service in return; nor can it be supposed, that the enlightened majority of the National Assembly will be blind to the fact, that the admission of iron, duty free, would afford employment to an immense number of persons, who have at present no work—for it would lead to iron being employed in a thousand ways, which have never yet been thought of in France.

I mentioned, in my last, that the men of the Coal Mines of Anzin had struck for an advance of wages, but had, subsequently, returned to their work. The Government has since sent a note to the newspapers, stating that the difference which had arisen between the men and their employers, had been settled by a special commissioner, sent down to Anzin: he has arranged, that the pay of the men shall be increased to 2 fr. 50 c. (about 2s. 2d. per day), for the labour of from 8 to 10 hours. The newspaper note says, that this price gives great satisfaction to the men, without encroaching too much on the profits of the employers. The latter, it is added, have determined not to make any addition to the price of coal, in consequence of this increase in the pay of the men.

I have received letters from different parts of the country, but not making any mention of any important works having stopped. The important works at Montataire have, like the others, been kept going; in fact, the metallurgical establishments appear not to have known that there has been a revolution.

P.S.—An extraordinary meeting of the shareholders of the Vieille Montagne Company is to be held on Saturday. The shares have been done to-day on the Bourse at 2400 fr.—Paris, Thursday.

FRENCH TRANS-ATLANTIC STEAMERS.—In consequence of the failure of the boilers and machinery of the four-vessels which passed between Havre and New York—the *Union*, the *Missouri*, the *Philadelphia*, and the *New York*—which had been constructed of inferior French iron, and were considered unsafe, the entire machinery and boilers have been taken out, and will be replaced by new ones of 650-horse power, while the former ones were only 450; they will be constructed on the most improved principles of entire English manufacture. The *Union* is expected to be ready for sea early next month, and for the future Welsh anthracite and British coal only is to be employed. The present Government of France intends a searching reform in the steam navy; which, according to the report of the commissioner appointed by the late Minister, the Duke de Montebello, is far from being in an effective state; the machinery and boilers having been supplied by contracts, and that principally by the late Government favourites, the material is, in many cases, of that inferior quality as to be totally unfit for service. This determination on the part of the Provisional Government has excited no little anxiety among the French ironmasters and machinists, as it is expected that a project of law will be passed immediately after the meeting of the new Chamber of Deputies, for the admission of British, Belgian, and Swedish iron, at a moderate duty, particularly for ship building, locomotives, and steam-engines for the navy, and also a great reduction in the duty on British coal. The Customs laws also are to undergo a complete revision, so as to place them in a state of reciprocity with other nations. The greater part of the iron-works of France are nearly at a standstill, and, probably, will remain so until the nature of the Government measure is ascertained.

SAILING OF THE NORTH AMERICAN PACKETS.—The Right Hon. the Marquis of Clanricarde, the Postmaster General, has issued a notice, that during the ensuing summer, mails will be transmitted between Liverpool and North America, once a week, by the British Contract Mail Steam-Packets, which will leave Liverpool for Boston and New York alternately on every Saturday, and will be dispatched from Boston and New York alternately on their return voyage every Wednesday.

RAILWAY AND COMMERCIAL GAZETTE.

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EXPERIMENTS ON COAL—STEAM-NAVY ECONOMY.

We again enter on the report of Sir H. De la Beche and Dr. Lyon Playfair, on the description of coal best suited to the purposes of the steam navy, to which we alluded last week, and shall commence a series of articles from its elaborate pages, which will be found of the utmost importance, and of the most instructive character, on the nature and quality of the numerous varieties in England and Wales, of that most essential mineral—coal. The experiments have been conducted in a most careful, extensive, and elaborate manner, and on a scale which has never before been adopted in this country; and this first report alone has thrown much light on the varying qualities of coal, and enabling parties to form a correct judgment as to the value of the produce of any of the mines of the kingdom. They were conducted first by Messrs. Wilson, Phillips, and Kingsbury, the analyses of the coals by Mr. Wrightson (a pupil of Liebig); Mr. Galloway, an assistant at the college, analysed the gases; Mr. How, a very careful experimentalist at the College of Civil Engineers, succeeded the two latter gentlemen in general analyses; and Mr. Wm. Hutchinson, the working engineer of the establishment, is acknowledged by the staff to have been most assiduous and to have rendered important services. The first portion of the report consists of algebraical calculations on the mean temperature of water, the expansion of boiler and tanks at increasing atmospheric temperature, latent heat of steam, hygroscopic water in coal, &c. The following are some of the experiments on the latter subject:—Graigala coal, 196 hygroscopic water; anthracite, 244; Old Castle, 074; Ward's fiery vein, 127; Mynd Newydd, 067; Pentrefoeth, 078; Pentrefelin, 070.

The following is a useful and interesting table, showing the mean composition of average samples of coals:—

Locality, or Name, of Coal.	Spec. Grav. of Coal.	Carbon.	Hydro.	Nitrogen.	Diphosph.	Ash.	Pr. of c. left by coal.
Graigala (Wash coal)	1.30	84.87	3.84	0.01	0.45	7.19	324.....
Oldgate Fiery Vein	1.375	91.44	3.46	0.91	0.19	2.98	1.92.....
Ward's Fiery Vein	1.289	87.68	4.80	1.31	0.19	3.39	6.52.....
Bliss Coal	1.344	77.87	3.93	2.02	0.83	2.64	7.94.....
Llangammarch	1.304	88.66	4.63	1.43	0.33	1.93	1.93.....
Pentrefoeth	1.312	85.46	4.30	1.08	0.28	2.44	8.36.....
Pentrefelin	1.31	88.72	4.80	1.08	0.18	3.74	6.54.....
Dunraven	1.336	85.92	3.72	0.95	0.28	3.36	8.10.....
Mynd Newydd	1.326	88.26	4.65	1.36	0.35	6.09	82.5.....
Three-quarter Rock Vein	1.34	84.71	5.76	1.56	1.77	0.60	85.0.....
Cwm Ffordd Rock Vein	1.255	76.15	4.93	1.67	2.65	3.92	7.75.....
Old Navy-gros	1.298	82.25	5.84	1.11	1.22	5.04	84.3.....
Rosswell	1.32	78.36	5.30	1.86	3.01	3.98	6.25.....
Fonthill	1.32	79.33	4.75	1.38	0.97	6.86	6.88.....
Blaenau	1.32	80.70	4.56	1.38	0.97	6.86	6.66.....
Ebbw Vale	1.28	80.61	5.01	1.94	2.38	4.36	8.10.....
Portskewett Rock Vein	1.275	89.78	5.15	2.16	1.07	1.30	6.94.....
Coldham	1.38	74.70	4.73	1.28	0.91	3.50	1.50.....
Dalkeith Coronation Sam-	1.29	73.84	5.14	1.41	2.34	8.92	7.75.....
Walls End Elchin	1.277	74.35	5.14	0.10	0.33	1.37	5.60.....
Fordell Slinn	1.20	76.94	5.20	1.41	0.38	4.37	4.98.....
Grangeemouth	1.25	76.89	5.22	1.41	1.53	3.10	5.93.....
Bromton (English)	1.29	79.58	5.50	1.13	1.46	8.33	5.49.....
Park End, Lydney	1.25	79.56	5.28	1.35	1.42	8.88	6.00.....
Silverdale (Irish)	1.283	81.70	5.17	1.94	2.48	3.70	5.63.....
Formosa Island (foreign)	1.39	86.03	2.30	0.28	2.37	10.00	57.3.....
Borneo (Javanian kind)	1.24	78.96	6.70	4.74	6.76	1.95	9.01.....
3 feet seam	1.36	65.52	4.52	0.94	0.49	10.95	3.96.....
11 feet seam	1.37	54.37	5.03	1.45	2.05	7.74	1.43.....
Wylam's Patent Fuel (Pet. fuel)	1.10	70.33	5.41	0.97	1.14	2.22	3.23.....
Washable ditto	1.14	79.91	5.69	1.17	1.17	6.83	4.84.....
		87.88	6.22	0.81	0.71	4.96	7.17.....
		90.02	5.56	1.15	1.38	2.91	58.80.....

A considerable portion of the report is on the investigation of patent fuel. Out of the number of patents working, they could only obtain specimens from that manufactured under those of Wylam, Warlich, and Bell; and the results we shall notice in their place. On this subject the report says—

There is little doubt that, notwithstanding the large number of patents in operation for the manufacture of fuel, its value for the purposes of war-steamer might be much enhanced by its preparation being specially directed to this object. Even anthracite may be introduced into such mixtures with advantage.

It is of much importance in an economical inquiry on coals, to obtain exact information as to the effects likely to be produced upon them by stowage, and continued exposure to high temperature, not only as regards their deterioration, but also as to the emission of dangerous gases by their progressive changes.

The retention of coal in iron bunkers, if these are likely to be influenced by moisture, and especially when by any accident wetted with sea-water, will cause a speedy corrosion of the iron, with a rapidity proportionate to its more or less efficient protection from corroding influences. This corrosion seems due to the action of carbon or coal forming with the iron a voltaic couple, and thus promoting oxidation. The action is similar to that of the tubercular concretions which appear on the inside of iron water-pipes, when a piece of carbon, not chemically combined with the metal, and in contact with saline waters, produces a speedy corrosion. Where the make of iron shows it to be liable to be thus corroded, a mechanical protection is generally found sufficient. This is sometimes given by Roman cement, by a lining of wood, or by a dry oil driven into the pores of the iron under great pressure. Recent researches on the gases evolved from coal prove that carbonic acid and nitrogen are constantly mixed with the inflammable portion, showing that the coal must still be uniting with the oxygen of the atmosphere, and entering into further decay. Decay is merely a combustion proceeding without flame, and is always attended with the production of heat. The gas evolved during the progress of decay, in free air, consists principally of carbonic acid, a gas very injurious to animal life. It is well known that this change in coal proceeds more rapidly at an elevated temperature, and therefore is liable to take place in hot climates. Dryness is unfavourable to the change, while moisture causes it to proceed with rapidity. When sulphur or iron pyrites (a compound of sulphur and iron) is present in considerable quantity in a coal still changing under the action of the atmosphere, a second powerful heating cause is introduced, and both acting together, may produce what is termed spontaneous combustion. The latter cause is, in itself sufficient, if there be an unusual proportion of sulphur or iron pyrites present. The best method of prevention, in all such cases, is to ensure perfect dryness in the coal, when they are stowed away, and to select a variety of fuel not liable to the progressive decomposition to which allusion has been made. This is, however, a subject of so much importance to the steam navy, that it continues to receive our careful attention; and, beyond these general recommendations, it would be premature to offer any decided course for adoption, from the present limited series of observations.

Several varieties of coal were transmitted from Formosa and from Borneo, for analysis, the results of which are contained in the accompanying table. The quantity of each kind was so small, that no experiments could be made on their evaporative value. We extract from the preceding table the following results:—

Name. Carbon. Hydro. Nitro. Sulph. Oxyg. Ashes. Sp. grav.
Formosa Island..... 78.26 .. 5.70 .. 0.64 .. 0.49 .. 10.93 .. 3.96 .. 1.24
Borneo, Lubau kind..... 61.92 .. 4.74 .. 0.80 .. 0.48 .. 20.75 .. 7.74 .. 1.28
3 feet seam..... 54.91 .. 5.03 .. 0.29 .. 0.14 .. 14.22 .. 14.28 .. 1.37
11 feet seam..... 70.33 .. 5.41 .. 0.67 .. 1.17 .. 19.19 .. 3.23 .. 1.21

It may be desirable to sum up, in a few words, some of the principal points alluded to in the previous parts of this report. It has been shown that the true practical value of coals for steam purposes depends upon a combination of qualities, which could only be elicited by carefully and properly conducted experiments. Their qualities, so far as regards steam-ships of war, may be stated as follows:—

1. The fuel should burn so that steam may be raised in a short period. If this be done, in other words, it should be able to produce a quick action.

2. It should possess high evaporative power—that is, be capable of converting much water into steam, with a small consumption of coal.
3. It should not be bituminous, lest so much smoke be generated as to betray the position of ships of war when it is desirable that this should be concealed.
4. It should possess considerable cohesion of its particles, so that it may not be broken into too small fragments by the constant attrition which it may experience in the vessel.
5. It should combine a considerable density with such mechanical structure that it may easily be stowed away in small spaces; a condition which, in coals of equal evaporative values, often involves a difference of more than 20 per cent.
6. It should be free from any considerable quantity of sulphur, and should not progressively decay, both of which circumstances render it liable to spontaneous combustion.

It never happens that all these conditions are united in one coal. To take an instance, anthracite has very high evaporative power, but not being easily ignited, is not suited for quick action; it has great cohesion of its particles, and is not easily broken up by attrition, but it is not a coking coal; and, therefore, would not endure in the furnace when the ship rolled in a gale of wind; and, therefore, would not emit smoke—but, from the intensity of its combustion, causes the iron of the bars and boilers to oxidize, or waste away rapidly. Thus, then, with some pre-eminent advantages, it has disadvantages which, under ordinary circumstances, preclude its use. The conditions above alluded to may, however, often be met with in fuels artificially prepared from coal possessing these various qualities, somewhat in the manner of what are usually termed patent fuels; and we have recommended that experiments should be made with this object, especially directed to the wants of the steam navy. Whilst we look with this view to artificial fuel as being of special importance, it was quite necessary to obtain a knowledge of coals in different districts; and, for this purpose, Wales was first selected for examination, as producing coals of all kinds, varying from bituminous to anthracite.

In concluding the report, its authors bear testimony to the kind manner in which they had been assisted by various public and private institutions and companies, without whose aid the expenses of the inquiry would have been materially increased. The College of Engineers allowed a large space of ground for the boiler, and a house and yard for the stowage of the coals; Sir John Rennie lent a tubular boiler and ground, until that at Putney could be in readiness; and the Great Western Railway Company brought the Welsh coals from Bristol gratis. Such ready and liberal co-operation of the public, shows their appreciation of the important practical results which may be expected from these experiments.

In our next, we shall give descriptions and the results of the analyses on the various kinds of coal experimented on.

SOUTH WALES IRON TRADE.

PRESENTATION OF PLATE TO SAMUEL HOMFRAY, ESQ., CHAIRMAN.

We have, during the week, had the pleasure of inspecting, at the establishment of the manufacturers, Messrs. Hunt and Roskell (late Storr and Mortimer), New Bond-street, a splendid piece of plate, intended for presentation to Samuel Homfray, Esq., as chairman of the meetings of the South Wales Iron Trade. The design is of monumental character; on the base, which is of triangular form, are three figures, of Prometheus, Molus, and Vulcan—representing fire, the wind, and the forge, or manipulation. These figures are of frosted silver, boldly and beautifully modelled in full relief. From the base springs a column of polished silver, enriched by hatching, and divided into three compartments, by laurel-trees and foliage. In these three compartments are beautifully engraved the arms of S. Homfray, Esq., his cypher and crest, and the following inscription:—

PRESENTED
BY THE IRONMASTERS OF SOUTH WALES,
TO
SAMUEL HOMFRAY, ESQ., BRDWELLITY HOUSE,
MOSGOWTHIRE,
IN ACKNOWLEDGEMENT OF THE ABILITY AND COURTESY
WITH WHICH HE HAS ON NUMEROUS OCCASIONS
PRESIDED AS CHAIRMAN
AT MEETINGS OF THE WELSH IRON TRADE.

1847.

The whole is surmounted by a figure of Minerva, in the palm of whose right hand is held a small figure of Fame, who in her outstretched hands holds a laurel wreath. The whole is of most finished workmanship, weighs 400 ozs., and stands 30 inches high. It reflects great credit on both designer and manufacturer, and will, doubtless, give equal gratification to the receiver, and those by whom it is presented.

IMPROVEMENTS IN CARRIAGES, WHEELS, &c.—Mr. Aitken, of Aberdeen, has patented some improvements in the construction of carriages, carts, wheels, &c., which, from the description we have heard of them, are likely to be productive of the most important results in common road locomotion. He has at present three specimens finished, and which will shortly be exhibited in Edinburgh—an Albert car to hold four persons, weighing 4 cwt., with the wheels entire, and of the most light and elegant appearance; an omnibus seated for 20, but in which 40 persons have been stowed, without in the least oppressing two horses, or placing any particular strain on the springs, this weighs 12 cwt.; a common cart, which, with powerful springs, weighs 7 cwt., and has been loaded to 2 tons, and drawn through the streets by a single horse. These extraordinary results are effected by the use of iron throughout, except the lining, seats, &c., the employment of what in the specification is termed *felloe* iron for the wheels, and the adoption of a patented wheel, an *iron suspension wheel*. The only quality now to be tested is durability, and wear and tear; and there is little doubt but that in carriages, as well as ships, and various other things to which iron has been applied of late years, its superiority over wood will be fully established. It may even be said to carry with it a moral benefit, as these light and easy-going vehicles will absolutely promote the views of the Society for the Suppression of Cruelty to Animals; for it lightens the horse's load, and precludes the *necessity* (?) of that cruelty so often practised, of torturing a horse to make him draw a load above his strength. We hope they will be exhibited also in London.

THE DEE BRIDGE—CHESTER AND HOLYHEAD RAILWAY.—In the House of Commons, on Monday evening, Mr. Osborn put a question to Mr. Strutt, as First Commissioner of Railways, as to the safety of the railway bridge over the Dee. He understood that one of the girders was cracked by a workman driving in a pin with a 4-lb. hammer, which had created much consternation. It was also found, that out of the 12 original ones, three had been broken. One day last week the engine-driver neglected the precautionary duty of shutting off the steam, but went over at full speed, when a violent oscillating motion ensued, which caused the greatest alarm, yet no notice was taken of these things at the late meeting of the company. He begged to ask, if the commissioners had any report as to the state of the bridge; and, if so, would he have any objection to lay it before the house?—From Mr. Strutt's reply, it appeared the bridge had been temporarily supported and carefully inspected, and it had been reported as perfectly safe. As a measure of further precaution, the directors had given orders, that on a train approaching it, the steam should be shut off. He understood there had been an accident to one of the girders; the commissioners had made due inquiry, and the report of the engineer was, that it was perfectly safe; it would, however, be immediately replaced by another. Until a permanent surveyor was appointed, inspectors should view the bridge from time to time, and whatever defect was discovered should be pointed out.

IMPROVEMENTS IN THE MANUFACTURE OF SULPHURIC ACID.—M. Schneider presented a paper to the Paris Society for the Encouragement of the Arts, on a new system of producing sulphuric acid from sulphurous acid, without the use of leaden retorts, or any of the nitrates, or nitric acid—he makes use merely of atmospheric air, without any intermediate agent, extracting all the oxygen necessary for converting the sulphurous acid into sulphuric acid. M. Schneider carried out an experiment before the chemical committee of the society. He employed prepared pumice-stone, distributed among various recipients, and added water, through which the gas and vapours had to circulate; all the openings of the different vessels having been closed by hydraulic means, the sulphur was kindled, and the combustion continued without interruption. All the acidified liquors were then mixed, to form a common sample—the absence of all nitrogenous compounds in the liquor was declared to be complete; and the committee came to the conclusion, that sulphuric acid can be made without any nitric acid, or nitrates. That the quantity of acid obtained from given quantities of sulphur consumed, approaches the maximum under the old method, and that the inventor's preparation is so powerful, that he engages to supply, for several years, the prepared pumice-stone, and ravify it. By this process, it being so exceedingly simple, every one will be enabled to make his own sulphuric acid.

A deputation, consisting of Mr. Pendarves, Sir W. S. Harris, Mr. J. Taylor, and Mr. C. Rowe, had an interview with Viscount Morpeth on Saturday last, at the office of her Majesty's Commissioners of Woods and Forests, in White-hall-place.

Original Correspondence.

A UNIVERSAL DELUGE.

Sir.—It was originally my intention to have elaborated my views on the great geological question—a universal deluge—at some length, derived from what I believe to be the facts of the case, and altogether irrespective and independent of the records of revelation. I have, however, abandoned this intention—for, in order to have carried this fully out, I should have cleared the way of those stumbling

ever found. They obtain, in transition, limestone, which enshires the fossil *relics* of marine productions. Where calcareous matter drips from the roof, the same thickness nearly, is found on the floor. The oseons contents are embedded in brown mud; and the relative ratio of *carnivora*, *herbivora*, &c., are very much the same as in existing nature—thus the depth of stalagmite in Kirkdale Cave corresponds with that of Scharfeld, Bauhman's Höhle, Biel's Höhle, and Galenreuth, on the continent. Wherever geology has extended its range, these oseons caverns are to be found, as in England, France, Belgium, Westphalia, Franconia, and Wurtemberg. They are distributed along the shores of the Mediterranean Sea, and exist in North America, Australia, and in Asia.

It should not be overlooked in this estimate, that the contents of bone caves find a striking counterpart in that of *diluvium*, with the *mastodon* superadded to the latter; by diluvium, I understand the era of the transport of gravel, and, perhaps, that of the denudation of valleys. It has been said, that the mammoth was, likely, contemporaneous with man—a recent admission, I believe, but strongly confirmatory of the testimony of the organic remains of man, as discovered in the caverns of Bize, Poudre, Jouvgargne, Liège, &c., considered as contemporaneous with the other organic wreck among which they have been found, mingled *pèle mêlé*.

When these classes of evidence are viewed together in their aggregate, they seem, to my simple understanding, to constitute such a mass of cumulative proof, as to amount to demonstration. The universality and uniformity of each link of the chain of evidence, and its connection with each other by peculiar ties, stamp them as contemporaneous. I have considered the phenomena in the light of a generalization, and as a grand whole, not doubting but local catastrophes have, since this great event in geology, supervened, and may have complicated the phenomena, and somewhat disturbed the continuity.

Conjoin with these monumental proofs, the traditions of all nations under heaven; the Shasters and Vedas of the East—the Sagas of Scandinavia—the Bards of the East—and the Sagas of the North—the legends of the Chinese, Hindoo, Mexican, Egyptian, Polynesian. Consult moreover, the annals of Greece and Rome, and I dare to ask, in the language of CUVIER, "What but truth could have brought them together?"—and when I consider the numerous oseons caverns, &c., I have explored—as those of Montmartre, the Mendip Hills, &c., I may well exclaim—"Si monumenta meara, circumspice!"—J. MURRAY: Portland-place, Hull, March 9.

THE ELECTRICAL RESEARCHES OF MR. BAGGS.

Sir,—I am certainly surprised at the purport of Mr. Baggs's communication, as recorded in your last Number. If he infers from anything I have said, that there is the slightest intention to detract, in any degree, from the merits of his researches, he has assuredly altogether misunderstood me. Your scientific correspondent surely fails to recognise the legitimate sense of the term *theory*. The highest authority for the definition is Lord BACON, and Mr. Baggs cannot be otherwise than well acquainted with the *Novum Organon*. A theory must be founded on facts, and spring from them. *Systematised facts* is only another name for theory; the very term I used, then, presupposes the admission of a stated fact. Had I said *hypothesis*, there might have been reason for the too precipitate conclusion, that I had called in question, or doubted Mr. Cross's view of a thunder cloud; but I admitted it at once, *comme un fait accompli*, though, in doing this, I cannot forego my subscription to Liebig's logic, that even what we may esteem facts, have to do with *present*, rather than *future*, knowledge. I observe, Mr. Baggs, in explanation, states, that the laws of induction were understood as implied, though not expressed; I have, therefore, nothing more to say on that point.

I referred, of course, to Lichtenburg's experiments, which I had often repeated. Mr. Bennett had, however, infinitely surpassed in execution, as well as modified, these devices of the ingenious philosopher of Goettingen, which certainly, however, formed the principle, and supplied the nucleus for his experiments. I frankly confess I had never dreamed of any other view of the nature and character of the electric spark from the prime conductor of the electrical machine, and the discharge of the Leyden jar—namely, that what the latter was *en masse*, the spark was *in detail*; or, in other words, that the Leyden charge was an accumulation, or aggregation, of electric sparks. I had both taught and published these views, and took it for granted as generally admitted in modern times. From some modifications of Fusinier's experiments, which I made and recorded, and were transmitted to M. Van Mons, of Brussels, at his request, through Sir David Brewster, conjoined with other phenomena, I had drawn my conclusions, and settled down into the belief, that there could be no doubt on the subject; besides, by the method already referred to, I have reduced the residual transfer to a mere spark.

As to Mr. Walker, all that I shall say of him is, that his *practice* is better than his hypothesis—if the lightning-conductor, erected on the Royal Exchange, is to be admitted in evidence; which, however, is, as far as it goes, a mere copy of mine—50 of which had been erected in various parts of the country, and have stood the test of twenty years!—being fully described in my work on *Lightning Conductors*, as well as in the *Journal of the London Electrical Society*, of which Mr. Walker was secretary. As to the eccentric electrician of Sandwich, I am not sure that I hold his opinions in very high estimation. If I remember right, he overtops the lightning rod with the necks of broken bottles, and is chiefly remarkable for an abortive attempt to substantiate the fooleries of Mr. Cross in the creation of insects, and thus endeavour to revive the exploded atheistical doctrine of spontaneous generation, or equivocal production. I will, moreover, frankly confess, that I think he might have employed his time to much better purpose than in hatching mites!—J. MURRAY: Portland-place, Hull, March 9.

IMPROVEMENTS IN THE MANUFACTURE OF BRICKS AND TILES.

Sir.—Permit me, through the medium of your columns, to offer a few remarks upon a lecture, delivered at the Western Scientific Institution, by Mr. Schmidt, and reported in your Journal of the 4th inst. Mr. Schmidt's lecture was upon improvements in the manufacture of bricks and tiles, in which he was pleased to remark, that up to the present time, many attempts have been made to introduce machinery into this important branch; but perfectly-shaped bricks have never been produced with any degree of certainty—in fact, hitherto all machines have been complete failures at practical purposes—the mechanism being too delicate, or too complicated, for the coarse work it has to perform. Surely, Mr. Schmidt must be possessed of more penetration than usually falls to the lot of us poor mortals, to take such a wide field of observation on inventions—patented and otherwise—"since the days of Adam"—pierce to their very centre, see all their faults and failings, and sweep them away at one rude stroke—"like the baseless fabric of a vision, nor leave a wreath behind," save and excepting the infallible one he is interested in. "Indeed, Mr. Schmidt, you are too hard upon us, poor inventors!" In the sweeping vision Mr. Schmidt has taken of brick machinery, I am inclined to think he has passed by mine unobserved, though in his lecture he says *all* is included; but that he may be certain of the fact, I invite him just to run down to Leeds, when I will show him a brick-machine at work, which, I have no doubt, will surprise him, and lead him to exclaim to his present pot—"Get out, thou base-born braggart!" I have given much attention to the subject of brick-making by machinery for these last 15 years, and have succeeded in making a machine, which is fed with clay immediately when dug—grinds all the stones contained in that clay—thoroughly amalgamates all the particles—moulds the bricks—presses and delivers them at the rate of from 16,000 to 20,000 per day. The machine is first fed with rough clay, just as dug, and delivers the very best-pressed front bricks. By the explanation Mr. Schmidt gives of M. Legros's machine, in his lecture, I beg to inform him, that it is impossible it can succeed for many reasons I could give him. I shall be glad to show any parties interested my machine at work, when they can judge for themselves.—JOHN LONGBOTTOM: Yester-lane Works, Leeds, March 13.

SANATORY REFORM.

Sir.—In your Journal of March 11th, appears a rejoinder, from Mr. Wicksteed, to the communication made by myself of February 28th, and the other made by "X. Z." of February 23d, on this very important subject, in which reply certain misconceptions exist—based either upon the usual source of such errors, or upon the result of some editorial pruning to which my letter was subject. * * * Mr. Wicksteed's assumption, that my plan, or project, of a *cloaca* for the entire metropolis, would cost 4,000,000, sterling, is erroneous, as I only proposed to demand 1,000,000, which, when exacted for one-fourth, or $\frac{1}{4}$ th, as an experiment, of the metropolis would yield, in future, 370,000 per annum profit on its *surplus*, and in *present*; and, after paying 10 per cent. to shareholders, would furnish capital to repay any debentures which the rapidity of the

extended works might necessitate. As Mr. Wicksteed is to my thinking one of "the eminent engineers," or, according to Exceise phrase, "an expectant," he must excuse the expression in which I denominate the eulogy of "X. Z."s" one-sided notions, which all schemes *may* more or less be, that emanate from the brain or brains of one, or of a very limited society of mere wise-acres. I may be stigmatised as the author of "imperious and haughty dogmatism" for such expressions; but I really cannot help entertaining the idea, that the attempts now progressing of the sanitary commission from Lord Morpeth, down to the tailor of Conduit-street, of weaving a sanitary bill for the observance of all intelligences, is, to say the least of it, one-sided and puerile. Is a whole nation to be bound by the thoughts of six people—one of whom is a Schneider?

One thing more, and I have done. Your correspondent, of Feb. 19th, has quarrelled with his own intolerant sneers; and so far forgot himself as to realise for himself in my mind the adage of "the kettle and the pan"; nor would he have any need to express his contempt for me, "could he see himself as I see him;" and I can assure him that not only am I out of the atmosphere of his petulant intolerance, but so much his superior, as to be at least free from a *legal fault*, of which he, by the two-voiced trumpet of fame, is the continual *perpetrator*. Wm. RADLEY, Ch. E. March 14.

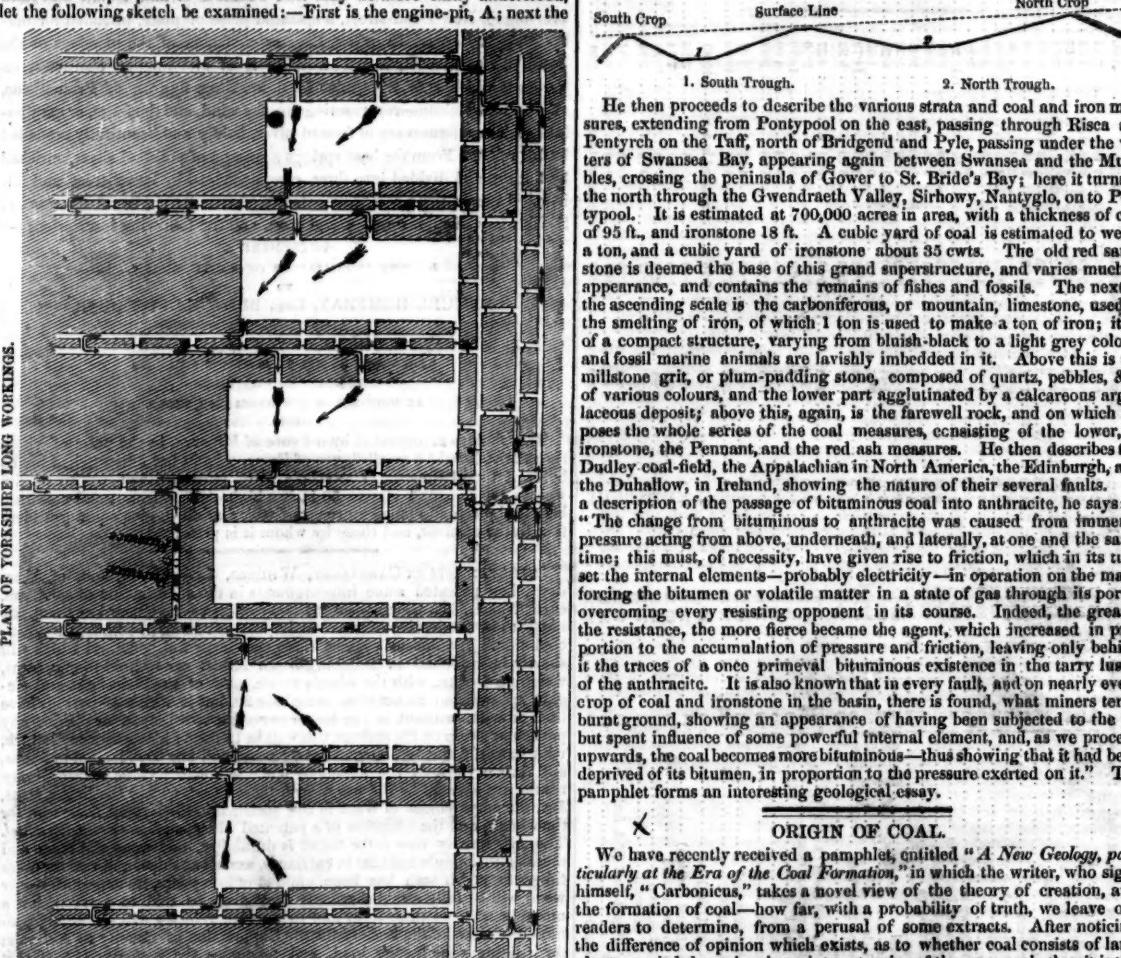
COLLIERY OPERATIONS—YORKSHIRE LONG WORKING.

Sir.—It is well known, that the present plan of ventilating coal mines is censured and condemned by the mere theorist. One novice appears in the public press with one scheme, pretending to be an improved plan of ventilation, and a second with another, declaring it to be a still greater improvement. I am really weary of seeing so much absurdity in the public papers, but am sorry to say that it has been our own fault, in giving them the opportunity of condemning the right principle and plan, of the sad neglect of which many practical men are guilty. I defy the world, however, to produce a more efficient plan of ventilation than the present, were it carried out as it ought to be. It is Nature's own law; but on some account or other it is not fully carried out generally; in many instances, the plan adopted is a mere imitation of it. Perhaps, one reason why this efficient plan has not always been adopted and carried out, has been the low and ruinous prices for which coals have generally sold. That this simple plan of Nature's own may be more easily understood, let the following sketch be examined:—First is the engine-pit, A; next the

been brought against it, is the weight of the column of water in the tube, should one station be several hundred feet higher than the other; but the inconvenience can be easily obviated by means of self-acting valves. Nature herself provides for this in the human body; it is well known that there is a number of valves in the arteries, which prevent the weight of the column of blood interfering with the circulation; when these valves are injured by accident, they produce a sinuosity well known to medical men as *varicose veins*. I have drawn a sketch of a valve which would support the weight of the water, and yet would not interfere with the working of the telegraph; but it cannot be correctly explained without a wood-cut. It consists of a metal ball, placed in the tube, and connected with a piston placed in a short tube, double the diameter of the long tube; the weight of the column of water would keep the valve closed; but, on increasing the weight by pressing the piston of the telegraph, the valve would open by the depression of the piston placed in the larger tube; a spring fastened to this piston would cause it to rise, as soon as the pressure on the telegraph piston would be removed, and, consequently, close the valve—so that the valve would open only while the telegraph piston would be pressed down, by causing a hydrostatic pressure on the piston in the larger tube. It is to be hoped that the capabilities of this invention will be fully tested; and as the tubes could be laid on the ordinary roads at a cost little exceeding that of the posts which support the telegraphic wires, a great number might be laid down between large towns, which would tend to bring this mode of communication into universal use. JOHN DE LA HAYE. Liverpool, 3d mo. 15th.

THE MINERAL BASIN OF SOUTH WALES.

An interesting treatise on the coal and ironstone field of South Wales, has just been published by Mr. Frederick Moses, mineral surveyor, of Neath, dedicated to landed proprietors, ironmasters, and others interested. He has treated it in a manner which shows him to have well considered the peculiar locality, the dip, various faults, &c. Geologists have always represented this mass of mineral wealth as divided into two elongated curvilinear troughs, with a ridge between, known as the antichinal axis, understood by miners as the saddle-back; the author dissents from this opinion, and, during his experience, he has always found it more approximating the angular form, as in the following diagram:



coal-drawing pit, B; and, thirdly, the upcast-shaft, or cupola, C, with two furnaces placed near to the bottom—A and B being downcast pits—A working with the funnel, D, and B with the funnel, E. Observe next, the double air-courses driven into the coal bed, and their being carried sufficiently far in advance of the bank, or main working—trap-doors being placed in all situations where necessary, as shown by the small cross lines, some of which are marked S, and all the stoppings being made of brick, and well bonded with mortar.

All the windward slits, leading into the main workings, are left open; and all the leeward slits, with the exception of that one in use, well closed. This mode of ventilation will safely work a coal-field 100 acres, or upwards, in extent; but let it be observed, that if 100 acres, or upwards, can be worked by the said artificial means, it does not follow, that the same power of attraction will safely work a mine to any extent; but if beyond these limits another downcast and upcast shaft are found necessary, let them at once be sunk, and set to work. This would be done at a less expense than by driving air-drills above the coal bed, boring holes from the surface, sinking pits on the crown of the old goaf, or gobbin, or fixing metal pipes underground from the said goaf, or gobbin, to the upcast shaft (as has been recommended by the mere theorist), and with a great deal more efficiency; the theorist's schemes would be utterly useless.

I should be much obliged by any coal proprietor showing, or pointing out to me, a coal mine which could not be worked with the greatest safety upon the principle and plan here laid down, and that, too, with the naked candle. Should any gentleman feel disposed to object to this practical plan of ventilation, which I support as being the most simple, easy, and the best that can be practised, by referring to the many explosions that had taken place under it, I am prepared to prove, that the fault has not been in the principle, but from want of its being properly carried out by the managers of those mines where the explosions have taken place.

J. C. SUTCLIFFE.

THE HYDRAULIC TELEGRAPH.

RESPECTED FRIEND.—A curious fact connected with new discoveries is, that whatever obstacles have been encountered in their adoption, they have been generally of a different nature to those which had been anticipated, when originally brought to light. The locomotive and atmospheric railway are cases in point; with the former it was objected, that the wheels would whirl in the air, instead of propelling the train; and with the latter it was stated by several engineers, that it would be impossible to stop the trains between the stations—while the great difficulty has been hitherto not to stop the train, but, owing to a defective valve, to propel it. The objections brought against the hydraulic telegraph, are, in all probability, doomed to rank with the above. Those objections prove simply that there is room for improvements in the detail of the apparatus—in fact, it can hardly be called a question of principle, but of length; and if, as "An Inventor" says, it will work well with a tube 10 miles in length, we shall soon see the invention sufficiently perfected to permit its adoption from one end of the country to the other. The most plausible objection which has

He then proceeds to describe the various strata and coal and iron measures, extending from Pontypool on the east, passing through Risca and Pentrych on the Taff, north of Bridgend and Pyle, passing under the waters of Swansea Bay, appearing again between Swansea and the Mumbles, crossing the peninsula of Gower to St. Bride's Bay; here it turns to the north through the Gwendraeth Valley, Sirhowy, Nantyglo, on to Pontypool. It is estimated at 700,000 acres in area, with a thickness of coal of 95 ft., and ironstone 18 ft. A cubic yard of coal is estimated to weigh a ton, and a cubic yard of ironstone about 35 cwt. The old red sandstone is deemed the base of this grand superstructure, and varies much in appearance, and contains the remains of fishes and fossils. The next in the ascending scale is the carboniferous, or mountain, limestone, used in the smelting of iron, of which 1 ton is used to make a ton of iron; it is of a compact structure, varying from bluish-black to a light grey colour, and fossil marine animals are lavishly imbedded in it. Above this is the millstone grit, or plum-pudding stone, composed of quartz, pebbles, &c., of various colours, and the lower part agglutinated by a calcareous argillaceous deposit; above this, again, is the farewell rock, and on which repose the whole series of the coal measures, consisting of the lower, or ironstone, the Pennant, and the red ash measures. He then describes the Dudley coal-field, the Appalachian in North America, the Edinburgh, and the Duhallow, in Ireland, showing the nature of their several faults. In a description of the passage of bituminous coal into anthracite, he says:—"The change from bituminous to anthracite was caused from immense pressure acting from above, underneath, and laterally, at one and the same time; this must, of necessity, have given rise to friction, which in its turn set the internal elements—probably electricity—in operation on the mass, forcing the bitumen or volatile matter in a state of gas through its pores, overcoming every resisting opponent in its course. Indeed, the greater the resistance, the more fierce became the agent, which increased in proportion to the accumulation of pressure and friction, leaving only behind it the traces of a once primeval bituminous existence in the tarry lustre of the anthracite. It is also known that in every fault, and on nearly every crop of coal and ironstone in the basin, there is found, what miners term, burnt ground, showing an appearance of having been subjected to the all but spent influence of some powerful internal element, and, as we proceed upwards, the coal becomes more bituminous—thus showing that it had been deprived of its bitumen, in proportion to the pressure exerted on it." The pamphlet forms an interesting geological essay.

ORIGIN OF COAL.

We have recently received a pamphlet, entitled "A New Geology, particularly at the Era of the Coal Formation," in which the writer, who signs himself, "Carbonicus," takes a novel view of the theory of creation, and the formation of coal—how far, with a probability of truth, we leave our readers to determine, from a perusal of some extracts. After noticing the difference of opinion which exists, as to whether coal consists of land plants carried down by rivers into estuaries of the sea, or whether it is the altered residuum of plants which grew on the spot, he proceeds to give his opinion, "that the atoms of which the granite is composed were once in a state of fusion—and that when solidified, they became the crystalline amorphous rock granite, as the base of all the others; that the other strata were afterwards deposited layer upon layer, from the micaceous to the chalk, sands, and gravels, according to locality; that previous, however, to this, one wide waste of waters swamped the earth; and that to earthquakes beneath may be attributed the present existence of mountains, seas, and valleys—redeemed the coal beds from their watery graves, and saved the earth its fossils and its minerals. That the earliest families of plants and forests successively were charred by fire upon the soil wherein they grew and stood, whether by flames from beneath, by electric sparks from the clouds, or by spontaneous combustion—thus, and thus alone, were the first forests, jungles, and vast floral plains, embalmed by flames, and sepulchred in stone by clouds of argillaceous dust, silicious sands, calcareous gravels, and metallic ores; the origin of coal is, without doubt, the carbon of the floral scene, and all the different qualities—jet, common, cannel, and anthracite, are from the forest tribe, according to the varying flora of the different soils. The charcoal laid in its fossil bed, compressed the fibrous embers in a mass, and have preserved the various qualities in its descent. By these conforming means, the coals were saved successively, and roofed with stony plains, whose aggregates are mountains; beds of true carbon are revealed in scores, and various rocks in countless multitudes; the fossil tombs are many miles in depth, and thousands in extent." There is a vast deal in this pamphlet which is really too abstruse for our understanding—the language is so high-flown, so thoroughly serial, that it is too much for our mundane matter of fact temperament; but to say that common, or bituminous, coal has undergone the process of charring, is in opposition to all chemical experience. What would have become of the sulphuretted and carburetted hydrogen, the tar, ammonia, &c., which it contains so plentifully?—and it is well known, if vegetable matter is charred, it leaves behind nearly only the pure carbon. We cannot help feeling that the science of geology, as at present understood by our lecturers on the subject, is far nearer the truth than anything "Carbonicus" has advanced—and that his ideas on the coal formation are truly chimerical; and, as we said before, the pamphlet is written in such a style of bombast as to be thoroughly impossible to be understood. We give the following specimen from his account of the formation of coal:—"The forests in wide areas spread through periods, grow excessively, from causes then inherent, most immense, and for effects in ages now arrived, exhaustless as the seasons. Fields, like the face of many seas, produced more carbon in a single season than swarthy jungles at the tropics can in centuries; in a hot bed of youth, and air washed by the tepid dews, herb, plant, and grasses rivalled mountain pines, and humble shrubs excelled the cedar of our crippled age; every species in congenial climes, as pillars propped the clouds, and forests rose like Nature's pyramids, or mountains overgrown—thus every race gigantic sweltered with excess, and plethora, with such load of life, fell suddenly to fill appointed graves." Truly, this is fine writing with a vengeance!

IMPROVEMENTS IN TRUSSING BEAMS AND GIRDERS.

[Specification of patent, dated Sept. 2, 1847, granted to William Gibbons, of Corby's Hall, Worcester, for certain improvements in trussing beams and girders.]

This invention consists—first, in the application of bow-springs, in conjunction with the tie-rods hitherto employed in trussed beams and girders; and, second, in the forming of cast-iron beams and girders, with grooves or channels on their sides, in which is to be inserted the said tie-rods, such rods being intended for the purpose of supporting the said beams or girders in the event of their becoming fractured; and the intention of the springs, in conjunction with the tie-rods, is to impart an upward pressure to beams or girders, by virtue of the elasticity of such springs, the pressure of which may be adjusted by the means hereafter described; and the patentee, in applying such springs to beams or girders, which are formed of one piece of metal or wood, arranges or disposes such springs at about the centre and under-side thereof; and, in applying them to compound beams or girders, which are formed of two or more parts, he arranges or disposes these springs at the points of junction of each of the main parts employed to compose the said beam or girder, which, according to their size, may be of any number—the springs, in all cases, being placed or disposed immediately at such points of junction, as before stated; the intention of such springs being, doubtless, to afford additional elasticity to beams or girders, independent of that of the materials of which they are composed. This mode of trussing beams and girders, as far as theory is concerned, appears to have much plausibility; but, as far as practical experience will allow a judgment to be formed, it seems extremely dubious whether there will be much, if any, benefit derivable therefrom; and for this simple reason, that, in order for a beam or girder to support a given weight, it is necessary that it should be of such dimensions that any occasional excess of pressure would not destroy its elasticity. Such being the case, we really cannot see to what extent, practically, the application of an inconsiderable number of springs thereto could be of use to return any beam or girder to its original position when once its own elasticity has been destroyed by any excess of pressure thereon. As regards the construction of metal beams and girders, with grooves or channels, in conjunction with tie-rods, there is no doubt it will afford great security, as, in the event of a fracture taking place, the weight will still be supported by the tie-rods. The patentee claims—first, the application to trussed beams and girders of one or more bow-springs, in conjunction with the rods, as described, set forth, and represented; and, second, the forming of metal beams or girders, with grooves or channels on their sides, as described and represented.

Patent-office and Design Registry, 210, Strand, March 14.

IMPROVEMENTS IN THE MANUFACTURE OF METALS FROM THEIR ORES.

[Patent dated September 9, 1847. Specification enclosed March 9, 1847.]

The improvements which form the subject of this patent have been communicated to Mr. J. C. Robertson from abroad, and patented by him on behalf of the inventor, whose description we shall now lay before our readers. It may be proper to premise, that electricity has been before applied, by Mr. Wall and others, to the extraction of metals from their ores; but not at the stage, nor in the way, here proposed:

"It is well-known that the ores of iron, lead, zinc, copper, tin, silver, antimony, bismuth, cobalt, and of most other metals, exist naturally as ores, in a state of combination with more or less of sulphur, phosphorus, arsenic, and other volatile matters, from which it is important that they should be freed before being subjected to the smelting or reducing process. For this purpose, they are usually roasted in heaps in the open air, or on the hearth of a reverberatory or other furnace, with exposure to the atmosphere—it being requisite, in order to the volatilisation of the matters which it is sought to get rid of, that the air should have access to the burning mass. But this roasting process is always tedious, and often so defective, that the ore, being very partially freed from the sulphur, phosphorus, and other volatile matters aforesaid, yields, when smelted, only a crude metal, possessed of neither the due malleability, nor the proper lustre. Now, the invention communicated to me, as aforesaid, consists in the subjection of the said ores to the joint action of heat and electricity, in manner following:—I have ascertained that when sulphur, phosphorus, and arsenic are under the influence of a high temperature, and have currents of electricity then transmitted through them, the sulphur, phosphorus, and arsenic, being naturally electro-negative, are powerfully attracted to the electro-positive pole of a voltaic battery, and have also their usual chemical affinities for metallic bases thereby impaired or diverted, so as to yield more readily to the volatilising influence of the heat, and pass off in the state of fumes or vapour. The mode of carrying this invention into practical operation may be varied according to local circumstances; but the following description and directions will enable any practical metallurgist to execute and apply it readily on any working scale:—

A furnace or kiln may be employed of the form and construction of the ordinary lime-kiln, and with a surrounding dome. It is made somewhat of a pear, conical, or egg shape, and lined with well-burnt bricks, made of fire-clay, and as free as may be from ferruginous matter, or with some vitrified bricks made by a due admixture of lime with clay and silica, in order that the lining may consist of materials which are to a great degree non-conductors of voltaic electricity, or at least bad conductors thereof. The grate-bars may rest loosely on cross bearings of iron, so that they may be easily shifted or replaced, as required. There may be an iron or fire-tile door at one side, a little above the level of the grates, for withdrawing the calcined ores. From the top or side of the dome a wide chimney proceeds, through which the vapours arising from the furnace either pass off into the open air or into some approved condensing apparatus. The mode of operating with the furnace is as follows:—

The grate-bars are first covered with a layer of fuel (preferring good coke or anthracite, when it can be procured, to bituminous raw coal), over which a layer of the ore (previously broken into small pieces, and sorted as usual) is laid; a second layer of fuel is then laid above the layer of ore, and over that second layer of fuel a second layer of ore; and so the operation of filling proceeds, the ore and fuel being piled up in alternate layers till the cavity of the furnace is filled. On the middle of the topmost layer an iron ring or cross should be laid. The undermost layer of fuel being kindled, it sets fire progressively to all the superjacent layers, and the roasting process begins.

The degree of strength with which the electric current acts, will be evidenced by the escape from the top of the furnace, in more or less abundance in the form of fumes, of the sulphurous or other matters desired to be got rid of. The activity and power of the electrical current should be tested from time to time by transmitting it through a little acid and water in the test glass tube apparatus, well known to electricians, and described in most of the modern treatises on voltaic electricity. The lowest and best calcined portions of the mass are to be drawn off from time to time, either by the side doors of the furnace or from the grate itself, by removing two or three of the moveable bars, after the manner commonly adopted in the draw lime-kiln.

In proportion as the furnace is emptied at bottom, it must be replenished from the top with alternate layers of fuel and ore, as aforesaid, in order to maintain the mass always at the same level as nearly as may be; on which occasions the iron ring or cross may be removed during the time of feeding, and immediately afterwards replaced. The voltaic circuit should be also mean-while interrupted. The proce, after it has gone through this roasting and calcining process, is to be washed and reduced, either in retorts, by cementation or in a blast-furnace, according to the modes in ordinary use."—*Mechanics' Magazine*.

PETITION AGAINST THE PRESENT PATENT LAW SYSTEM.—The enormous and shameful abuses that at present exist in the British patent laws—abuses that stand as an insurmountable barrier between the ingenious, but needy inventor, and that reward which the dictates of reason and conscience, and the laws of the country, have awarded as justly his due—we are glad to find are about to be attacked with boldness and intelligence; our correspondent, Mr. Campion, of the Patent-office, 210, Strand, whose views upon the subject of amendment of the patent laws have appeared in former Numbers of our Journal, being occupied in getting up petitions to the Legislature, praying for reform. As far as we have been enabled to advocate the rights of inventors, we have always felt a peculiar gratification in doing so with the utmost energy and spirit; and we now think it right to direct the attention of our readers to such a manifesto as that just spoken of, in order that such a praiseworthy effort should not fail for lack of the support of inventors themselves, at least, as far as we can contribute to that object.

THE NAVAL POWER OF ENGLAND.

The following is a complete summary of her Majesty's Navy, with lists of all the mercantile maritime companies employed by the Government to carry mails, and their numbers of vessels—their horse-power, tonnage, and number of men, taken on the 12th of February last:

No.	Guns.	Men.	Tons.	Horse-power.
Sailing ships	161	3661	31,249	147,066
Sail-ditto	93	351	7,700	36,853
Total	254	4052	39,905	20,840

There are also, in the revenue service, 66 sailing vessels, 123 guns, 1180 men, and 4906 tons; and one steam-ship, the *Vulture*, 2 guns, 37 men, 325 tons, and 150-horse power—making a total of 67 ships, 134 men, 5320 tons, and 150-horse power; in addition, the coast guard consists of 4200—making the number of the coast guard force nearly 6400, and would be a most available body for general purposes, were they under the control of the Admiralty, instead of the Customs.

PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY.

This company has 23 steam-vessels, of 24,646 tons, 7355-horse power, and 1320 men; with the Admiralty have three contracts—1. For carrying the mails monthly between England, Gibraltar, Malta, and Alexandria, contracting to carry four guns, fit to the largest in the navy, for 29,500 per annum; and, by another agreement, to carry a mail between Southampton and Malta, in vessels of 280-horse power; and—Malta and Alexandria, 180-horse power, for 15,500 per annum, or 4s. 6d. per mile.—2. To carry the mails between the East Indies and China, once a month, at 160,000 per annum—providing three steamers, of not less than 500-horse power each, and one not less than 200-horse power; two steamers, not less than 400-horse power each, and one not less than 250-horse power for China.—3. To convey the mails between England, Vigo, Lisbon, Oporto, and Gibraltar—five, or more, not less than 140-horse power—for 20,500, per annum—less 3500, if port charges in Spain and Portugal are remitted.

ROYAL MAIL STEAM-PACKET COMPANY.

This company has 14 vessels, 16,069 tons, 5457-horse power, and 1197 men; and two sailing-vessels, 238 tons, and 30 men. They contract with the Government to carry the mails between England, the West Indies, and the Gulf of Mexico, twice a month, from Southampton, for 240,000 per annum, finding 14 steamers, 10 of 400-horse power, and the remaining four for the colonies, only 250-horse power.

BRITISH NORTH AMERICAN MAIL COMPANY.

This company possesses 10 ships, 18,875 tons, 5242-horse power, and 876 men; they contract to carry the mails between Liverpool, Halifax, and Boston, and Liverpool and New York; they have 145,000 per annum, employing nine vessels, of 400-horse power, and one spare steamer, of 180-horse power.

CITY OF DUBLIN STEAM-PACKET COMPANY.

Has 7 ships, of 3660 tons, 1672-horse power, and 150 men—convey the mails between Liverpool and Kingstown, daily, for 9000 per annum.

GENERAL STEAM NAVIGATION COMPANY.

Contracts with the Post-office to 17,000 per annum; they have 14 vessels—7886 tons, 2638-horse power, and 314 men.

MONA ISLE STEAM-PACKET COMPANY.

Contracts with the Post-office for conveying the mails between Liverpool and the Isle of Man, twice a week, for 8000 per annum; they have four vessels, 1658 tons, 664-horse power, and 45 men.

SOUTH-WESTERN STEAM-PACKET COMPANY.

Has 5 vessels, 1239 tons, 636-horse power, and 108 men; they contract with the Admiralty to convey mails between Southampton and the Channel Islands, three times a week, at 20,000, employing three or more steamers of not less than 30-horse power.

PACIFIC STEAM NAVIGATION COMPANY.

Employs 4 vessels, 2384 tons, 740-horse power, 184 men—contract to convey the mails to Panama, once a month, for 20,000 per annum.

HALIFAX AND NEWFOUNDLAND.

Mr. Whitney, of St. John's, New Brunswick, contracts to convey mails, twice a month, from April to November, in sailing vessels, of not less than 140 tons, for 4469 per annum, terminable on six months' notice, between Halifax and Bermuda.—*The Roveray, Lady Ogle, Margaret, and Velocity*, above 100 tons each, with crews of 10 men.

Messrs. Toumlin, of Great St. Helens, contract to convey the mails from England and Sydney, New South Wales, once a month from England, and 12 annual departures from Sydney, in sailing vessels of not less than 260 tons, for 1000 per voyage out, and 1000 per voyage home; no two vessels to sail from Sydney at a greater interval than six weeks.—13 vessels, 319 men, 6514 tons.

Summary of Steam-Vessels.

Company.	No.	Men.	Tons.	Horse-power.
Peninsular and Oriental	23	1320	94,646	7955
Royal Mail	14	1127	16,069	5457
British North America	10	875	13,875	5242
General Steam	14	314	7,868	2638
City of Dublin	7	150	3,660	1672
Mona Isle	4	45	1,568	664
South-Western	5	103	1,239	636
Pacific	4	184	2,384	740
Halifax, &c.	1	30	489	264
Totals	82	4148	61,798	25,264

In addition to the above, the following sailing vessels are engaged in the contract mail packet service:—

SAILING VESSELS.

The Aberdeen and Leith Company contract for conveying the mails, weekly, between Aberdeen and Berwick, for 9000 per annum, in a sailing vessel, of not less than 140 tons, from October to March inclusive.—*The William Hogarth*, 140 tons, for 14,000 per annum.

Mr. Friend, of Alexandria, contracts to convey the mails, monthly, between Alexandria and Beyrouth, for 1300 per month, in a sailing vessel, from 120 to 150 tons:—*The Enigma*.

Mr. Goward contracts to convey the mails twice a month in summer, and once a month in winter, in sailing vessels (four or more), not less than 180 tons, for 4469 per annum, terminable on six months' notice, between Halifax and Bermuda.—*The Roveray, Lady Ogle, Margaret, and Velocity*, above 100 tons each, with crews of 10 men.

Messrs. Toumlin, of Great St. Helens, contract to convey the mails from England and Sydney, New South Wales, once a month from England, and 12 annual departures from Sydney, in sailing vessels of not less than 260 tons, for 1000 per voyage out, and 1000 per voyage home; no two vessels to sail from Sydney at a greater interval than six weeks.—13 vessels, 319 men, 6514 tons.

Summary of Sailing Vessels.

Company.	Ships.	Men.	Tons.	Horse-power.
Royal Mail	2	30	286
Aberdeen and Leith	1	10	140
Alexandria and Beyrouth	1	10	150
Halifax and Bermuda	4	40	400
Sydney	13	314	6224
Totals	21	408	7452

Taking the steamers employed in the contract packet service into account with the sailing vessels, we find the grand total to be the following:—

No.	Men.	Tons.	Horse-power.
Steamers	82	4148	25,264
Sailing Vessels	21	408	7452
Totals	103	4551	25,264

IMPROVEMENTS IN THE FUNNELS OF THAMES STEAMERS.

Our attention has been drawn to an important improvement in the mode adopted for allowing the upper half of the vessel's funnels to descend, so as to enable the boat to pass the several bridges. In the funnels hitherto constructed, the joint of the two portions has been merely a simple hinge, which, in a comparatively short period, from oxidation, action of smoke, heat, &c., become corroded and weakened, and at length give way—the upper portion falling on the deck, to the imminent danger of the passengers, and the nuisance from the smoke for the remainder of the journey. An accident of this kind occurred some short time since to one of the boats of the Waterman's Company,

BIDDLE'S PATENT AEOLIAN ENGINE—The BEST, CHEAPEST, and SAFEST MODE OF OBTAINING WIND-POWER, ever yet employed, applicable in almost all situations, and to a great variety of useful purposes—such as pumping, grinding, and milling of every description, at a tenth part of the usual cost. It is self-regulating, and, where used for raising water only, it might be left day and night without attendance. There is no railway, estate, farm, nor mill, but might advantageously adopt it.—Specimen at Mr. Oliver's Saw-Mill, Surrey Canal, where all particulars may be obtained.—Contracts made, &c.

IMPORTANT TO RAILWAY AND STEAM NAVIGATION COMPANIES, MANUFACTURERS, AND ENGINEERS.

W. BROTHERTON AND CO.'S

PATENT LUBRICATING FLUID (or Animal Oil) FOR ALL DESCRIPTIONS OF MACHINERY.

W. B. & CO. have the pleasure to state, that the above article is extensively used in Her Majesty's Steam Navy, and by several of the principal Steam Navigation and Railway Companies, and is pronounced by them, and by the first practical engineers of the day, to be far better adapted for the purposes of lubrication than any other article hitherto used for such purposes. The Patent Lubricating Fluid is equally applicable for the most intricate and fine pieces of machinery, as for the heaviest bearings of the steam-engine. It is cheaper, much more economical, and cleaner than oils at present in use; is free from smell, and calculated to effect a vast saving in the expenditure of working steam powers.

Further particulars can be had, and testimonials seen, by application to the manufacturers.

W. BROTHERTON & CO., Hungerford Wharf, Strand, London.

N.B.—The above article will burn in lamps, and give a light equal to the best sperm oil.

TO ENGINEERS AND BOILER-MAKERS.

LAP-WELDED IRON TUBES, FOR MARINE AND LOCOMOTIVE STEAM-BOILERS,

TUBES FOR STEAM, GAS, AND OTHER PURPOSES.

ALL SORTS OF GAS FITTINGS.

THE BIRMINGHAM PATENT IRON TUBE COMPANY, 42, CAMBRIDGE-STREET, BIRMINGHAM, & SMETHWICK, STAFFORDSHIRE, MANUFACTURE BOILERS AND GAS TUBES, under an exclusive License from Mr. R. Prosser, the patentee. These tubes are very extensively used in the boilers of marine and locomotive steam-engines in England and on the Continent—are stronger, lighter, cheaper, and more durable than brass or copper tubes, and are warranted not to open in the world.

42, CAMBRIDGE-STREET, CRESCENT, BIRMINGHAM.

WORKS—SMETHWICK, STAFFORDSHIRE.

LONDON WAREHOUSE—No. 68, UPPER THAMES-STREET.

FLEXIBLE HOSE-PIPES FOR LOCOMOTIVE ENGINES, RAILWAY CRANES, FIRE-ENGINES, GAS, &c.

PATENT VULCANISED INDIA-RUBBER HOSE-PIPES AND TUBING

OF EVERY DESCRIPTION.

These pipes are made to stand hot-water without injury—are very superior to leather pipes, or the common India-rubber pipes; and, as they do not become hard or stiff in the lowest temperatures, or require any application when out of use, are particularly well adapted for fire-engines.

FLEXIBLE TUBING, of every description, for gas, chemical purposes, &c.

VULCANISED INDIA-RUBBER WASHERS, all sizes, for steam and hot-water joints, &c.—Sole manufacturer, JAMES LYNE HANCOCK,

Goswell Mews, Goswell-road, London.

PATENT ALKALI COMPANY'S IRON PAINT.—This PAINT, now first offered to the public, is the PRODUCT of a PATENT PROCESS, and possesses VALUABLE and PECULIAR QUALITIES, not otherwise attainable. Its colour is a purple-brown—it is perfectly innocuous—far more durable than lead paint, and two coats are fully equal to three of any other paint. A single coat will be sufficient to demonstrate this. Its durability is very great.

From its chemical composition, it is especially, and above all other paints, adapted to covering iron; it also wood, and stuccoed, or brick walls. The peculiar oxidation of the base of this paint makes it impossible that further change should take place in its composition. Its identity with iron secures it from galvanic action, so injurious to the durability of lead paints on iron work. It has been exposed on shipping to the action of sea-water, and the sulphurated hydrogen so prevalent in sea-ports and tidal harbours, for three years, without change.

Its cheapness and strength render it admirably adapted for iron railings, farm buildings, and shipping. It will also cover crooked timber. Price, by the ton, £20, delivered in London. All orders to be addressed to the offices of the company, 30, Fenchurch-street, London; where testimonials may be seen as to the value of the paint.

EVANS, BROTHERS, Agents.

GALVANIZATION OF METALS.

MESSRS. MOREWOOD AND ROGERS'S LATEST IMPROVEMENTS.

In coating iron with molten zinc, the iron is very liable to injury, and the coating is generally brittle, and is apt to crack and break when being bended, and the coating will often chip or scale off. In coating iron with tin, the malleability of the iron is retained, and the adhesion and flexibility of the coating is uninjured by bending or folding, but a coating of tin does not protect the iron as a coating of zinc does. To obtain, therefore, the protection of zinc, combined with the advantages of tin, as a covering, and at the same time to obtain a harder coating than results from the use of either of those metals alone, Messrs. Morewood and Rogers now use an alloy of tin and zinc for coating iron. They have found that an alloy of tin with zinc, consisting of 50 parts of tin, and 50 parts of zinc, is the best alloy of these metals which can be used as a coating for sheets of iron hoop, iron wire, and other articles of iron; and they have also found, that if the proportion of zinc be much diminished, the coating becomes less durable and protective; on the other hand, they have found, that if the proportion of tin be diminished, the adhesion of the coating becomes less and less effective, and the iron proportionately injured.

The proportions of the two metals above given may, however, be varied to some extent, and yet considerable benefit obtained. It has been also found that lead may be combined with the alloy, when cheaper or lower-priced coating is desired. In using an alloy of tin and zinc for coating iron, it is found that to alter the proportion beyond 67 parts of zinc to 33 parts of tin, and 75 parts of tin to 25 parts of zinc, you are no longer able to obtain the beneficial results of the combined action of the two metals. Every departure from using equal proportions of the two metals seems to produce a decreasing beneficial effect, and this in proportion to the greater departure from such alloy. In preparing an alloy of tin and zinc, they first melt the tin in a wrought-iron vessel, and add the zinc by degrees, till the whole is melted; they then run the same into bars or ingots, and melt these ingots in a similar vessel of wrought-iron, in order to make a bath for coating iron, and from time to time they put such ingots or bars into the bath of molten alloy, in order to keep up a proper bath for coating the sheets or other articles of iron, covering the surface of the molten metal with sal-ammoniac. The iron to be coated is to be cleaned in the ordinary manner, and then coated as when coating with tin or with zinc. When using lead with the above alloy, Messrs. Morewood and Rogers find that a good proportion for an alloy is 50 parts of zinc, 35 parts of tin, and 15 parts of lead; and they produce such an alloy by melting the tin, then adding the lead, stirring them well, and finally adding the zinc.

It is further well-known, that in the process of coating iron with molten zinc a product of zinc results, which is precipitated to the bottom of the bath, and such product is of difficult fusion, and may up to this time be said to be a waste-product. Now Messrs. Morewood and Rogers melt such product of zinc in a wrought-iron vessel, or in a reverberatory furnace, and they employ chloride of manganese as a flux on the surface. They dip articles of iron, such as pikes, brackets, and other articles not requiring bending, into the bath, and coat the same. They also alloy such product of zinc, or other zinc, with antimony and with lead, when used for coating iron; for this purpose an alloy, consisting of 50 parts of zinc, 34 parts of lead, and 16 parts of antimony, is found to be very useful. And in preparing such an alloy, they first melt the lead heated to redness before introducing the antimony, and, when well stirred, they cast the same into ingots, and after remelting, they add the zinc; and, as a flux, they add chloride of manganese, if the product of zinc before-mentioned be used in making the alloy, or, if other zinc be used in making the alloy, they use sal-ammoniac. A third improvement consists in subjecting sheets of coated metal to pressure; for which purpose Messrs. Morewood and Rogers prefer to employ rollers, revolving in a flux, kept heated to a rather lower degree of heat than the melting point of the coating metal, by which means the coating is rendered soft, and in a condition to be acted on by pressure. They prefer to use palm or rape oil in all cases where the melting point of the coating is sufficiently low to allow of its use, as in the case of the coatings above mentioned. Other means may be resorted to for softening the coating metal, such as a charcoal fire. When using a fire, it may be done by placing a grate containing charcoal along the front of the rollers, so that, as they revolve, they may become heated, and the metal by passing over the fire may become softened, and thus enable the rollers to equalise the coating metal on the surfaces of the sheets. Or, the sheets may be heated by dipping into flux, or otherwise, to nearly the melting point of the coating metal, and then pressing between suitable surfaces. The patentees, however, prefer the use of a flux or fluid matter with rollers for this purpose, as above explained.

The fourth improvement consists in facilitating the coating of such iron, by causing the iron to be acted upon by the vapour of muratic acid (or of such other matter as will prevent or dissolve oxide) confined above the metal bath. For this purpose they construct a box, in the following manner:—The box is oblong, of wrought-iron, open at the bottom, and with a lid at the top; the bottom is closed by the lower edges dipping into the molten metal. On one side, about three-quarters of the way up, they make a longitudinal aperture, and when required out of the box—but, as it is desirable to exclude the atmospheric air, and keep in the muratic vapour as much as possible, the aperture should be no larger than necessary. The object of having a lid on the top is to enable them, by opening it, to have access to the flux or the molten metal in the bath, and from time to time to clean off impurities, or to add metal or flux. Into one end of the box they fix a tube, made of lead or other suitable material, through which they introduce the vapour which is evaporated from a solution of muratic acid contained in a retort. And for this purpose they prefer to apply this part of their invention when using rollers immersed in the metal bath, as the sheets to be coated can readily be passed through the opening above mentioned, so as to enter between the rollers, and the sheets will be delivered from the bath of molten metal through the flux therin, beyond the box above described.—*Mechanics' Magazine*.

LAMBERT'S PATENT FLEXIBLE DIAPHRAGM WATER VALVES, OR TAPS.—A certain PREVENTATIVE OF LEAKAGE, impeding the use of the metal plug-tap, which is continually out of order. They are more durable, less expensive, and being nearly frictionless, are opened and closed with perfect ease. They have been tested under various pressures, and have given the greatest satisfaction.—MANUFACTURED ONLY by the Patentees.

THOMAS LAMBERT & SON, Bras and Cock Founders,

30, New-cut, Blackfriars-road.

CALDWELL'S PATENT SELF-FLEETING WINDLASS, CAPSTAN, AND RIDING BITS COMPANY.

OFFICES—No. 78, KING WILLIAM-STREET, LONDON.

The patronage of the Lords of the Admiralty and the Hon. Trinity Board, together with testimonies of several of the most practical, scientific, and influential nauticalmen in the kingdom, having guaranteed the importance to the maritime world of the above-mentioned invention, it is now proposed to carry out the manufacture of the several patented articles—WINDLASSES, CAPSTANS, RIDING BITS, &c., by means of a capital of £100,000, to be raised in 50,000 shares, of £20 each, and to be conducted by a company, to be formed for the purpose.

The above inventions, in addition to their superiority over the old windlass, capstan, &c., have the recommendation of greater economy, as they can be supplied at a less price affording a very handsome profit; and, consequently, a large return to shareholders.

Models may be seen in operation—prospects obtained, and every information given, by application at the office, 78, King William-street, City, from Eleven till Four daily, and orders received there and at the manufactory, Bell Wharf, Shadwell.

CORNWALL NEW MINING COMPANY.

Capital £100,000, divided into 20,000 shares, of £5 each.

(With power to be increased.)

To be incorporated, in pursuance of the statute of 7 and 8 Vic., cap. 118—by which the responsibility of each shareholder is limited.

Deposit 20s. per share.

Not to be Paid until the Company is completely Registered and Incorporated.

The CORNWALL NEW MINING COMPANY is ESTABLISHED TO WORK A SERIES of TIN and COPPER MINES, chiefly in the district of ST. IVES, which has hitherto afforded a larger profit on its return of ore than any other part of the county.

In pursuance of this plan, five of this description have been already selected—viz.: Georgia Tin Mines, Treworth Tin and Copper Mine, Bray Tin and Copper Mine, Trevarno Tin and Copper Mine, and Wheal Squire Tin and Copper Mine, with whose owners the committee have been enabled to make such advantageous arrangements, as to enable them to work one or more with even a small portion of the proposed capital.

These mines are not only known to contain mineral ores of immense value, but the workings are already so far advanced, that the lodes ascertained and reached must produce early and large returns; and, in addition to the above, there are others which the committee have secured on sufficient public support being obtained.

With a view of inducing the public generally to avail themselves of such a beneficial employment of their capital, the committee have made the shares £5, and of which only £2 10s. is to be paid within 18 months—limiting further calls to the control of the subscribers themselves, and to be made only when a dividend shall have been declared.

Applications for shares to be made, in the usual form, at the offices of the company, 17, Essex-street, Strand; and to the following brokers and agents, of whom detailed prospectus may be obtained:—Messrs. G. and T. Irvine, Liverpool; Messrs. Cardwell and Sons, Manchester; Messrs. J. Scott and Son, Birmingham; Messrs. Rhodes and Hayes, Leeds; Messrs. Brady and Co., Hull; Mr. Joseph Clarke, Jun., Southampton; Mr. Chas. Claye, Halifax; Messrs. William and Charles Skardon, Plymouth; Messrs. W. Moore and Co., Huddersfield; Mr. Thomas Dewhurst, Bradford; Mr. Henry Catcher, Exeter; Mr. Ralph Dodsworth, York; Mr. W. F. Collier, Brixham; F. Crowe, Great Yarmouth; Mr. Charles Vincent, Dartmouth; Messrs. Edward Morgan and Co., Norwich; Messrs. Robinson Cruise and Son, King's Lynn.—Prospects can also be had at the office of the Mining Journal, 26, Fleet-street, London.

GEORGE LOCKWOOD, Secretary.

EAST WHEAL FRIENDSHIP MINING COMPANY, ADJOINING OLD WHEAL FRIENDSHIP.

TO BE WORKED ON THE "COST-BOOK" PRINCIPLE.

REPORT OF J. H. HITCHING, ESQ., OF THE DEVON GREAT CONSOLIDATED CO.

In viewing the sett generally, I have only to remark, that I consider it one possessing advantages of more than ordinary character; and, as a mining investment, as good as any can be. The lode at present in the adit end, now driving east of the River Tavy, being the large masterly one of Wheal Friendship Mines, which has proved so profitable to the adventurers—from 4 to 5 feet wide, intersecting throughout with gossan, muriatic, copper, peach, prian, and all the other characteristics comprised in the term "kindly."

Application for the remaining shares, or further particulars, apply at the office of the company, 48, Threadneedle-street; or of Mr. James Lane, 75, Old Broad-street.

EAST BIRCH TOR MINING COMPANY, NOW WORKING ON THE COST-BOOK SYSTEM.

In 2500 shares, at £2 per share.

LOCAL MANAGER—Captain Thomas Moyle.

PUBLIC—Mr. Thomas Ball, Exeter.

BANKERS—Robarts, Curris, & Co., London; Milford, Snow, & Co., City Bank, Exeter.

SOLICITOR—Mr. Ambrose Clare, 5, Saxe-lane, Buckminster, London.

SECRETARY—Capt. William Henry Smith, R.N., 1, Cophall Chambers, Throgmorton-street, London.

The East Birch Tor Tin Mine is held by this company for an unlimited term of years, provided four miners be kept at work on the mine, at the very low dues of 1-3d. per week.

It is situated in the parish of North Bovey, 6 miles west of Moroton, 18 miles west of Exeter, 12 miles north-west of Ashburton, and 14 miles east of Tavistock, and 20 north-west of Plymouth, in the county of Devon.

The mine is worked on the Cost-Book System, by which each shareholder is responsible only for the amount of shares he holds, and whereby he is at liberty to withdraw himself at any time, and demand his portion of the value of the mine, on giving notice to the secretary or purser to that effect. (See *Mining Journal* of the 19th of June, 1847.)

The mine contains 10 distinct lodes or veins, the richness of which has been fully tested and ascertained, so that the employment of a moderate capital cannot fail to make it equal to the most productive mine in either Devonshire or Cornwall.

Birch Tor, or Vitifer Mine, on the same lodes, and immediately adjoining East Birch Tor to the west, and of the same extent, has returned to a small proprietor, by the employment of a moderate capital, in a comparatively short period, upwards of £100,000 worth of tin.

The shafts, water-wheels, lifts or pumps, stamps, workshops, and all necessary implements and materials are complete, so that no additional expenditure, in that respect will be required for expanded operations: the additional outlay being confined to sinking shafts to a greater depth, driving levels, and raising ore for market.

There is sufficient surface-water to prosecute the mine to a great depth.

Rapid fortunes are now being realised by the mining operations in the surrounding neighbourhood, and no doubt is entertained that this mine (from the facility offered by the ready and cheap transit and shipment of the ores, and the delivery of all mining materials, particularly as metals now bear so steady and remunerative a price) will be equally successful.

The mine is at present working under tribute; and, from the increase both of quantity and richness of the ore, at its present lowest level, the advantages of further deepening and laying the mine more open are most encouraging. The public, therefore, have the opportunity of taking shares in this mine at the moment of its greatest prosperity.

A general meeting will be held every two months (ten days' notice of the time and place being given), when a full report of the company's affairs will be submitted to the shareholders.

It is confidently anticipated, that, by the disposal of the shares now offered to the public, the company's funds will be sufficient for future operations; at all events, it is guaranteed that no call will be made during the first 12 months, but by the expiration of which time no doubt is entertained of complete success.

Application for the remaining shares to be made either to the Secretary; to Messrs. Brackell and Son, 3, Laurence Pountney-place; or to Mr. Ambrose Clare, Solicitor, Saxe-lane, Buckminster, London.

Extract from a Report by Capt. James Browning, of East Birch Tor Tin Mine.

In presenting to you my report upon this mine, I will lay before you a statement of the work done from the commencement to the present time. There is a cross-cut adit level 287 fms., which is a firm adit almost all the way, and we have cut six lodes. We have driven on the course of the present south lode about 100 fms. west, and 150 fms. east; this lode has produced from 100 to 200 of tin in driving, and the greater part of the backs have been taken away at a moderate tribute. The north lode, at the shallow adit, has been driven east about 100 fms., and west about 170 fms., from the engine-shaft; the lode, in driving, has produced 300 of tin per fm. The engine-shaft is sunk on the north lode to 12 fms. under adit; and we have driven in these bottom levels 37 fms. east, and 52 fms. west. These bottom levels have produced more tin than at adit level, and there is a good deal going down; I should therefore, recommend sinking the engine-shaft immediately, and I would also recommend to drive west to cut the other north lodes.

East Birch Tor Tin Mine, Dartmoor, Devon, Sept. 7, 1847. JAMES BROWNING.

Extract from a Report by Mr. John Oford, of St. Aust